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CANADA

OPERATIONAL RESEARCH DIVISION

DIRECTORATE OF OPERATIONAL RESEARCH (JOINT & LAND)

ORD PROJECT REPORT PR 9908

REQUIREMENTS DOCUMENT: MINE RISK ASSESSMENT SOFTWARE PROTOTYPE 3

BY

Ms. M. Halbrohr

June 1999

OTTAWA, CANADA

National Defence Défense nationale

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OTTAWA, ONTARIO

JUNE 1999

ABSTRACT

This report documents the requirements for Version 3 of the Mine Risk Assessment (MRA) software prototype. It addresses software functionality, user population, design philosophy, screen design, and hardware and software requirements.

The Version 3 prototype is being developed for use in extensive field testing, with a view to determining whether it should be used on a regular basis to assist commanders (engineer section to contingent level) in assessing the risk involved with a mine clearance task during peace support operations.

RESUME

Ce rapport documente les exigences du la version 3 du logiciel MRA. Ce document porte sur les fonctions du logiciel, la présentation de l'interface, les besoins de l'usage ainsi que les contraintes quant au logiciel à utiliser et à la configuration du PC pour l'exploitation du logiciel.

La version 3 du prototype sera mise à l'essai avec l'armée Canadienne dans le but de determiner si ce logiciel serait utile pour évaluer le niveau de risque lors d'operations de déminage.

EXECUTIVE SUMMARY

In response to recommendations in the Mine Clearance Operations Study (Jan 96), Director Military Engineering (D Mil E) and Director General Operational Research (DGOR) staff developed a research prototype Mine Risk Assessment (MRA) computer based decision aid tool.

The research prototype MRA software Version 1 was designed to assist commanders (engineer section to contingent level) in assessing the risk involved with a mine clearance task during peace support operations. The research prototype was an extremely robust piece of software. It was validated and verified by both military and civilian staff. The inputs from the validation and verification process were the basis from which the detailed specifications for the functional prototype, MRA software Version 2, were drawn up. Prior Data Sciences Ltd. developed the Version 2 prototype under contract with extensive input from members of the MRA ES Steering Committee.

The Version 2 prototype allowed users to assess the utility of new functionality that had not been present in the research prototype. The new functionality was mainly in the areas of software administration and database updating. The assessment showed that these additional features were indeed important ones that were necessary for user acceptance of the software in day to day use. They provide an easy means of keeping the software up to date as new knowledge on mines is gained from the field.

Originally, it had been intended to conduct extensive field trials of the Version 2 prototype. However, the contract to complete the Version 2 prototype was ended before all the "bugs" had been ironed out of that version and before its documentation was completed. As such, it was decided to produce and field trial a third generation prototype, one that incorporates lessons learned from the two earlier versions. This decision was in line with the "rapid prototyping" approach that had been advocated for the project.

This report documents the requirements and design for the Version 3 prototype. It addresses software functionality, user population, design philosophy, screen design, and hardware and software requirements.

In summary, the MRA prototype Version 3 will be a user friendly, commercial quality software. It will consist of a front end and a back end. The front end will allow users to run mine risk assessments. The back end will allow users to conduct administrative tasks (e.g. change passwords) or to update the database (e.g. make changes to the questions and answers the software asks of users during an assessment run). Once an assessment has been completed, the software will generate comprehensive reports that provide an explanation of how the assessment was arrived at and assist in risk management and risk reduction. The algorithm to be used to generate the assessment is one that is easily understood by users. This lends to the credibility, utility and acceptance of the MRA software outputs.

The software will be user friendly, so much so that it can gainfully be employed with little training in its use. It will be well documented and built in a modular fashion in order to facilitate future upgrades. Once complete, it will be used in test mode as part of a field trial, and if accepted as is, it will be put to regular day to day use.

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ACKNOWLEDGMENTS

The earliest version of the Mine Risk Assessment (MRA) software was based on the knowledge and expertise of D Mil E 3-3, Maj. Perrin. A MRA ES Steering Committee was established to review and refine this early version. The Committee consisted of 5 Officers (4 Engineers, 1 Combat Arms) and a Defence Scientist, namely: D Mil E 3-3 (Maj. Perrin), RWGT 4-3 (Maj. Hewitt), RWGT 4-2 (Maj. Mader), D Mil E 2-2 (Capt. Jensen), D Mil E 3-4 (M.W.O. Ste Marie), D Mil E 3-4 (M.W.O. Mallard) and LFORT 6 (Ms. Halbrohr). The resulting product, the development of which was a team effort, is the MRA research prototype Version 1.

Prior Data Sciences Ltd. developed the functional MRA prototype Version 2 under contract with extensive input from members of the MRA ES Steering Committee. Version 2 is based on the research prototype. The Version 3 prototype is based on the earlier two prototypes, and is very similar to the second one in terms of screen design and intended functionality.

REQUIREMENTS DOCUMENT:
MINE RISK ASSESSMENT SOFTWARE
PROTOTYPE 3

INTRODUCTION

1. In response to recommendations in the Mine Clearance Operations Study (Jan 96), Director Military Engineering (D Mil E) and Director General Operational Research (DGOR) staff developed a research prototype Mine Risk Assessment (MRA) computer based decision aid tool.

2. The research prototype Version 1 was designed to assist Commanders (engineer section to contingent level) in assessing the risk involved with a mine clearance task during peace support operations. The research prototype was validated and verified by both military and civilian staff. The inputs from the trial were the basis from which the detailed specifications for the functional prototype were drawn up. Prior Data Sciences Ltd. developed the functional prototype Version 2 under contract, with extensive input from members of the MRA ES Steering Committee. Version 2 was developed using Visual Basic and Microsoft Access, and both a 16 bit and a 32 bit version of the source code was created in order to allow its implementation on Win 3.1/3.11, Win 95 and Win NT platforms. This was a sponsor requirement.

3. The Version 2 prototype allowed users to assess the utility of new functionality that had not been present in the research prototype. The new functionality was mainly in the areas of software administration and database updating. The assessment showed that these additional features were indeed important ones that were necessary for user acceptance of the software in day to day use. They provide an easy means of keeping the software up to date as new knowledge on mines is gained from the field.

4. Originally, it had been intended to conduct extensive field trials of the Version 2 prototype. However, the contract to complete the Version 2 prototype was ended before all the "bugs" had been ironed out of that version and before its documentation had been completed. As such, it was decided to produce and field trial a third generation

prototype, one that incorporates lessons learned from the two earlier versions. This decision was in line with the "rapid prototyping" approach that had been advocated for the project.

5. It was stressed from the outset of the project that the MRA software is to be one of many tools in the Commander's toolbox. If the user, based on his / her own personal experience and knowledge, feels that the assessment provided by the software is incorrect, then it is the user's judgement which prevails. The software is meant to assist, not to override, user's judgements. As such, a thorough explanation facility is an integral part of the software's design. The explanation facility will be built into the software in order to allow users to fully understand the reasoning behind the software's assessment and to help users mitigate, and possibly even reduce, the risk involved in a mine clearance operation.

6. In trialing the software, it should be noted that the risk assessment provided by it is the expected risk as determined using the best judgement available. This assessment should be used as a guide as to what is most likely to occur, not as a precise statement of what will occur should clearing operations proceed under the conditions specified for the assessment. There is no guarantee that the degree of injury to personnel or damage to equipment will not surpass, or be lower than, that expected. The software is to be used as a tool by the engineer, and its outputs are to be verified for reasonableness by the engineer. At no time is the tool's assessment to supercede the judgement of the professional engineer using the tool.

7. This report documents the requirements and design for the Version 3 prototype. It addresses software functionality, users, design philosophy, screen design, and hardware and software requirements.

SOFTWARE FUNCTIONALITY

8. The MRA software Version 3 will be fully bilingual. Users will be able to run it in either English or French mode. Users will be able to switch back and forth between languages at any time during software use. Documentation may be reviewed, assessments may be run, and reports may be printed, in either English or French.

9. The front end of the software will allow users to run mine risk assessments. In brief, the software will allow the user to either use an existing case or start a new one. If

a new case is started, it will allow the user to enter case details (e.g. serial number, location, and description) and then ask the user to respond to a series of structured questions. After the user has responded to the questions, the user will be given the opportunity to review the answers given and modify them if required. At this time, the user will also be shown the risk level associated with each answer. Once the review is complete, the user will have the option of viewing the software generated mine risk assessment and the corresponding reports, editing the reports (either within the MRA software or through porting it into a word-processing package), and printing the reports. The user will also have the option of providing comments to the administrator concerning enhancements which can be made to future software releases in terms of functionality, user friendliness, knowledge base (e.g. questions and answers), inference engine (e.g. algorithm used to generate the assessment), and any other matters of interest.

10. If the user chooses to use an existing case, then the user will follow the steps described above with the exception that:

a. when the question and answer set is reviewed, the case responses rather than the default answer will be highlighted by the software; and

b. the user will have the option of starting the review from any question and reviewing only a subset of the questions prior to viewing the assessment reports, rather than being forced to start from the first question.

11. Details concerning the algorithm used to generate the mine risk assessment and the English version of the knowledge base (with minor modifications) to be incorporated into the software for initial testing can be found in Reference 1.

12. The MRA software will generate the following reports:

a. a report listing the questions asked of the user and the user's response to each question;

b. a report listing the questions asked of the user, the user's response to each question, and the risk level associated with each response;

c. a report stating the assessed mine risk for the case and providing a detailed explanation of how the assessment was arrived at in order to allow for risk management and possibly risk reduction;

d. a report listing the questions asked of the user, the user's response to each question, and the user's personal notes pertaining to each question and answer set;

e. a report listing the case details information entered by the user; and

f. a report documenting mine risk definitions and caveats.

13. Each report will be stamped with the name of the person who last saved the corresponding case information and the date and time that save was made. A full mine risk assessment will only be made after all relevant questions are answered. The reports will be formatted so that they lend themselves easily to analysis as to whether or not, and how, mine risk can be reduced. Annex B provides a sample set of reports to illustrate the type of information that will be available from a typical assessment run.

14. The back end will allow changes to be made to certain portions of the knowledge base and inference engine. Other changes, not accessible through the back end, may be made by using the database software directly. The changes to the database will appear dynamically in the Version 3 software, without need to modify the software source code or recompile the program. The following may be changed (e.g. view, add, delete, modify/edit, print) via the database (the list is not meant to be all inclusive):

a. questions asked of the user (including question identifier, text, position number identifying the order in which the question is asked, whether the question allows single or multiple answers when it is responded to, and whether or not "No Answer" is a valid response to a question);

b. answers associated with each question (including answer identifier, text, order in which the answer appears within the answer list, explanation associated with the answer, risk level (if any) associated with the answer, warning (if any) associated with the answer, whether the answer stops system execution, whether the answer invokes an exclusion requiring certain questions to be skipped over and not asked of the user); note that it

is possible that a given answer is associated with more than one question, and in that case each question and answer set is treated independently in terms of its associated explanation, warning, risk, etc.;

c. on line help text;

d. documentation (including topic name, and text);

e. the warnings which can be assigned to answer and question sets (including warning identifier, and text);

f. the risks which can be assigned to answer and question sets (including risk identifier, text, degree (a number representing the severity of the associated risk level), and color); and

g. all text, captions and labels on all screens (e.g. instructions, copyright notice, license agreement, technical authority, screen names, and command button names). None of the text appearing on the MRA software screens will be hardcoded into the source code. All text will be modifiable either through the MRA screens directly or through using the agreed upon database software. Such database changes will be dynamically and automatically incorporated into the running of the software without any need to alter the source code or to recompile it.

15. The software will allow for an unlimited number of questions, an unlimited number of answers, and an unlimited number of risk levels. The algorithm will be coded generically so that increases or decreases in the number of allowed risk levels as denoted in the database will be dynamically taken into account by the software. This will allow easy upgrading of the knowledge base as mine technology evolves and as lessons learned from earlier use of the software are incorporated into later versions of it. Most of the changes to the database will be made directly through the use of the back end screens, without the need to directly use the database software.

16. The back end will have extensive, user friendly, built-in integrity checks to help users ensure that they have not omitted any critical information when they make modifications to the knowledge base and inference engine. The checks will be encompassing, assisting users in ensuring that the knowledge base and inference engine

are kept consistent, complete, and correct as changes are made via the database. The checks will also help ensure that the English and French versions of the knowledge base are kept consistent within the MRA software databases. The tree-diagram tool within the MRA software will also be available and will help in this regard. It will list the current questions, answers, risks, and exclusions (e.g. questions which are skipped if certain answers are given to related questions) in the database. It will be useful in providing an overview of the database contents.

17. The input to and output from the MRA software will either all be saved in a single file or it will be saved in two or more files. In the latter case, each of the files will be named and will contain information within them to allow users to easily identify that the files belong together as a group and represent the same case. This will facilitate historical analysis for cases at a future date, should it be needed.

18. Version 3 will be a well-documented, commercial quality software application that can, if accepted as is during the field trials, be immediately put into day to day use. As such, it will be a "bug-free" and fully validated and verified product. The contractor will be responsible for the validation and verification of the software. The contractor's validation and verification will not entail making suggestions for changes to the contents of the MRA knowledge base or for changes to the algorithm used to determine the assessed risk.

USERS

19. The MRA Version 3 tool will be primarily developed for users, from engineer section to contingent level, who wish to run a mine risk assessment. It is to be assumed that the computer expertise of the users could lie anywhere in the spectrum of inexperienced to expert. Therefore, the software front-end will be developed to cater to even the most inexperienced of users. An intuitive interface that can be correctly and gainfully employed with little training will be developed. It is this philosophy which led to the decision to avoid use of pull-down menus and to make the software as user friendly and as simple as possible, with all necessary documentation available on line.

20. In addition to users who run assessments, there will be other users of the MRA software. The others will be concerned mostly with the back end. They will be responsible for updating the knowledge base (e.g. adding new questions or modifying

existing ones), performing administrative duties (e.g. changing passwords), and making changes to the software code as required.

21. Access privileges to be assigned to users will be one of the following:

a. user (can only run assessments and access the front end; cannot access the back end);

b. database (has user privileges and the ability to access the database back end);

c. administrator (has database privileges and the ability to access the administration back end);

d. add new users / delete existing users (has user privileges and ability to add new users or delete existing users); and

e. programmer (has administrator privileges and the ability to modify the source code and the format and content of database tables).

Users will be required to log in with a password. This will enforce the privileges and ensure that changes to the database contents and program code can be made by only a small select group of users. Users without correct privileges will not be able to access and modify the database, whether it be through the MRA screens directly or by some other means. Upon distribution of the software and delivery by the contractor of Version 3, all users will have a unique nonblank password assigned to them and there will be at least one user name entered for each privilege category. Provision will be made to allow all users to change their passwords from within the MRA software, and a contingency plan provided for cases where the Administrator or programmer forget their passwords and need a way to log into the system.

DESIGN PHILOSOPHY

22. The aim of this project is to develop a simple to use commercial quality software package that can quickly provide useful mine risk assessments to Commanders during peace support operations.

23. It was stressed from the outset of the project that the MRA software is to be one of many tools in the Commander's toolbox. If the user, based on his / her own personal experience and knowledge, feels that the assessment provided by the software is incorrect, then it is the user's judgement which prevails. The software is meant to assist, not to override, user's judgements. As such, a thorough explanation facility is an integral part of the software's design. The explanation facility will be built into the software in order to allow users to fully understand the reasoning behind the software's assessment and to help users mitigate, and possibly even reduce, the risk involved in a mine clearance operation.

24. In order to aid novice users, screens are designed to be as simple and intuitive as possible. On line help will be built into the system to allow easy access to documentation should users need further clarification of questions, answers and other items incorporated into the software. The field around the radio buttons and checkboxes is to be as big as practical to allow choices to be made with less precision and control. Simple terminology is to be used consistently throughout the implementation. The screens are designed so that users can effectively use the MRA software with very little training. Complexity has been avoided, with the goal being to achieve as much simplicity and easy understandability as possible.

25. A long-term view has also been incorporated into the software design in order to aid future MRA software programmers. As such, the source code will be written in well-documented modules that should be easy to understand, maintain and enhance in the future. Items such as the knowledge base comprising the software and all the text on the screens will be modifiable via databases and without the need to alter the source code. The design allows for an unlimited number of questions, answers, and risk levels. This incorporates great flexibility in the software, allowing easy changes to it as mine technology evolves and new lessons are learned in the field.

26. Tools to be incorporated into the software include (the list is not all inclusive):

a. error handling features which provide users with specific useful error messages and allow users to recover gracefully from errors without losing their work to date;

b. an ability to edit the assessment reports within the MRA software or by importing the reports into Word or some other word-processing package;

c. comprehensive data integrity checks to help the administrator ensure entries are being properly input during database updates;

d. an automatic database backup utility;

e. a capability to operate the software using a mouse (or mouse equivalent) only, using keyboard only, or using a combination of the two with shortcuts clearly marked on screens;

f. an install and uninstall feature; and

g. a capability to generate a tree diagram showing the questions, answers, risks and exclusions comprising the database to allow for easier updates and maintenance.

27. The developer of the Version 3 prototype will be required to identify and implement comprehensive error checking and data integrity and completeness checking features as these are poor in the Version 2 prototype. The Version 3 software must be extremely robust and reliable as it is intended for use in situations in which lives are at risk. A complete validation and verification of the MRA software Version 3 by the contractor developing the Version 3 software must be completed. Errors exhibited to users should be explicit, allowing users to identify the type of error, the possible courses of action, and whether the error is due to a programming bug".

28. In addition, well-organized, clear and comprehensive documentation is to be prepared for the MRA software. The documentation is to be comprised of a design document, a user's guide, a programmer's guide and a test plan. The source code (including all variables, routines and modules) and databases are to be completely and comprehensively documented as well. Documentation of the source code is to be largely contained as comments within the code itself.

HARDWARE AND SOFTWARE REQUIREMENTS, AND DELIVERABLES

29. Three copies of the complete application, software source code, executables, populated database, and accompanying documentation (including design document, user's guide, programmer's guide, and test plan) will be delivered on CD and one copy

will be delivered on 3.5" diskettes. The documentation will also be delivered as a printed paper copy. As part of the delivery, the contractor will ensure that all PCs on which the Version 3 deliveries are to be tested can properly install the software.

30. All documentation is to be prepared and delivered in Microsoft Word (Office 97 version). Although earlier prototypes were Visual Basic and Access based, the Version 3 software may be developed using any programming language and database software the contractor recommends provided that the packages are well known and mature versions of software produced by companies with a proven track record and the likelihood that those packages will be fully supported in the future. It is essential that the Version 3 MRA software be upward compatible. If the contractor does not use the most recent release of the software to develop the product, then the contractor will be required to show that the source code and database for Version 3 of the MRA can be ported up to the latest version. The contractor will also be required to provide three copies on CD and one copy on diskettes of a version of the source code and database that run on the newest version of the chosen development package. For example, Version 2 was developed in Visual Basic 4 and both a 16 bit and 32-bit version were delivered. As well, a version that ran properly under Visual Basic 5 (the most current release at the time) was to be developed. Naturally, the choice of development software must be such that all aspects of the contract can be met. It is recognized that there may be a need to develop both a 16 and 32 bit version of the source code. Each delivery is to be completed validated and verified prior to having been made. As part of the delivery, the contractor will ensure that the delivered software can install properly on the PCs on which it is to be initially tested on.

31. The Version 3 software will properly install on and run under Win 95 and Win NT. The reason for the diversity of operating systems is driven by the needs of the software's clients.

32. As a minimum, the following will be used to run Version 3:

a. an Intel based 386 computer;

b. a CD-ROM driver (for install, unless disks are used for install);

c. a serial mouse;

d. 1.44 MB disk drive supporting 3.5" diskettes;

e. Win 95 or Win NT.

33. Version 3 is to run reasonably fast, and have a good response time to user keystrokes, even on PCs which conform only to the most minimal requirements stated above. It is to work properly on IBM and IBM-compatible laptops and desktops, both individual and server based, and it is to print properly on laser jet, bubble jet, and portable printers. It should run reasonably fast even if the number of questions and answers is increased several hundred fold over that used in the test case. It is anticipated that in the future, Version 3 may be run with a significantly larger database than currently used for testing.

SOFTWARE DESIGN

34. The main screens to comprise Version 3 of the MRA software are shown in Annex A. Sample reports are documented in Annex B. The Licensing Agreement is in Annex C. The database design for Version 2 of the software, upon which Version 3's may be based, is located in Annex D. A description of the algorithm used to make the mine risk assessments and of the knowledge base incorporated into the functional prototype is provided in Reference 1. The Version 3 software will contain the same knowledge base as documented in Reference 1, except for a few minor modifications. The corresponding French knowledge base has already been translated and can be made available to the Version 3 developer.

CONCLUDING REMARKS

35. This report documents the requirements and screen design for the Version 3 MRA prototype. It addresses software functionality, users, design philosophy, screen design, hardware and software requirements, and software design. Once completed, the software will be extensively trialed in the field, and depending on trial results, may be fielded as is for regular use in mine risk assessment.

36. In trialing the software, it should be noted that the risk assessment provided by it is the expected risk as determined using the best judgement available. This assessment should be used as a guide as to what is most likely to occur, not as precise statement of what will occur should clearing operations proceed under the conditions specified for the

assessment. There is no guarantee that the degree of injury to personnel or damage to equipment will not surpass, or be lower than, that expected. The software is to be used as a tool by the engineer, and its outputs are to be verified for reasonableness by the engineer. At no time is the tool's assessment to supercede the judgement of the professional engineer using the tool.

37. Given the fact that Version 3 could eventually be used to provide critical input into decisions affecting lives at risk, it is essential that its developers perform a complete validation and verification of the software.

REFERENCES

1. Halbrohr M., **Mine Risk Assessment Software Prototype Knowledge Base and Inference Engine**, ORD Project Report PR-9720, Sept 98.

ANNEX A
ORD PROJECT REPORT PR9908
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SCREEN DESIGN (VERSION WITH ENGLISH CAPTIONS)

In this annex, the "main" screens to comprise the MRA software (prototype Version 3) are documented. For ease of reference, each screen has been assigned to one of four groups, based on its functionality: mine risk assessment, documentation, administration or database update. These groups, and the "main" screens comprising them, are discussed in detail in the following pages of this report. A listing of these screens, along with the page on which they can be found, appears in the List of Figures that follows.

Note that for each English screen depicted in this report, there is corresponding screen that is in French. All dates and other features incorporated into the application are year 2000 (Y2K) compliant. There are some "minor" screens comprising the application design, which have not been documented in this report. They are to be included in the Version 3 MRA software as well. These screens are used in printing reports, saving files, providing users with error messages, database backup, missing data log, and for certain other functions. These screens appear in Version 2, although they may have errors in terms of implementation. Whenever possible, the "minor" screens mirror the format and functionality of standard Visual Basic dialog boxes. In addition, comprehensive integrity and error checks should be built into the Version 3 software. These are not detailed in this document, as the software engineer assigned to produce Version 3 of the software will develop them.

Differences between the Version 2 and Version 3 screen designs are shown using text boxes overlaid over the Version 2 design, in order to facilitate comparison of differences in design between the two versions. In the production of Version 3, the superimposed text boxes will be implemented to look like the other parts of the screen, and will no longer "stick" out as they do in this report. Minor changes to button placement and size may be required in order to ensure that all like buttons are equally sized on the screen and that the layout is pleasing and user friendly.

Note also that in version 3 of the software, "enhancement" on screens should be changed to "mitigation and software improvement", "new run" should be changed to "new assessment", and "save file" should be changed to "save assessment". These are strictly name changes, and do not change the capabilities required within the software. Note also that a new user privilege is to

be added to Version 3, one that allows the privilege of only adding or deleting users and of conducting assessments. In this report, the "old" and "new" names for these renamed functions are used interchangeably.

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Mine Risk Assessment Screens

This grouping includes the screens used for login to the software, for navigation to the appropriate software utility (database update, administration, assessment, documentation), and for running a mine risk assessment.

MRA Login Screen

The MRA software is launched through use of a special icon developed especially for the MRA application. The launching brings the Login screen to view. Unlike the other screens in this application, this is a bilingual screen. It allows the user to login by entering the user name and the user password and selecting OK. If the user starts the software and decides not to login after all, the user selects Cancel to exit the software without login. Once logged in, the user is allowed access only to the screens for which the user has access privileges. Most users will only be allowed access to the mine risk assessment and help documentation portions of the software. Others users may be allowed database update privileges as well. A small portion of users may also be allowed administrative privileges. There is also a programmer status, which is reserved for personnel cleared to make changes to the MRA source code and to the database structure.

Shortcuts

Note that some of the letters on the command buttons on all screens are underlined. This allows users to run the software using the keyboard, without use of a mouse. For example, Alt-O (e.g. pressing the Alt key and the letter O down at the same time) has the same effect as choosing OK with the mouse. Shortcuts on the other screens work in the same way. Press down the underlined letter at the same time as the Alt key, and the corresponding command with be carried out in the same manner as if it had been chosen with a mouse. Toolbar commands should also have shortcuts developed for them, with the shortcuts denoted by underlining. It should be possible to operate the Version 3 software entirely through use of the keyboard only, or the mouse (or mouse equivalent such as touch pad) only, or any combination of the two.

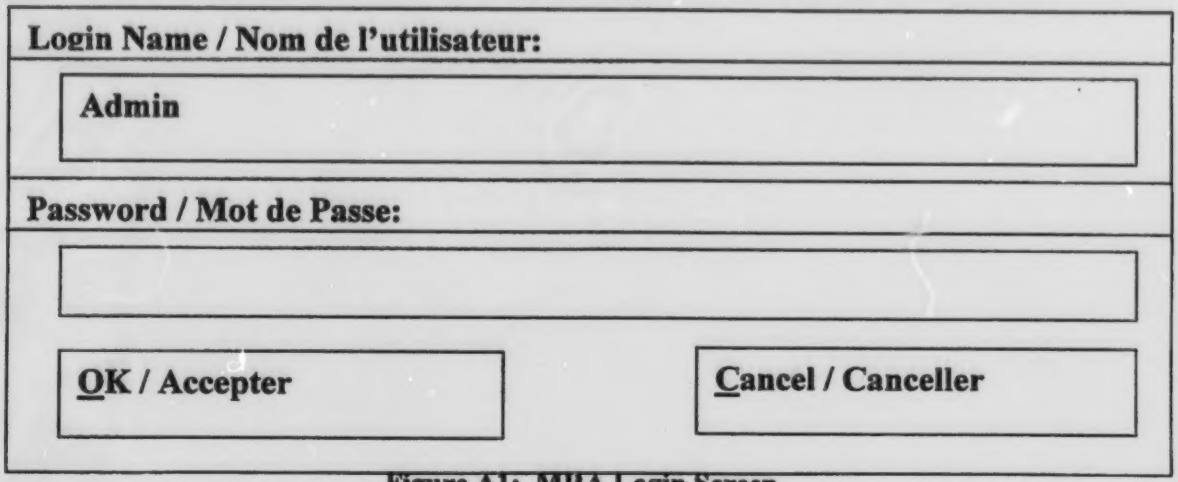

Figure A1: MRA Login Screen

Splash Screen

The Splash screen is the user's introduction to the software. It tells the user the software name, the version number, the technical authority, and where to call for technical assistance. It also provides the copyright notice for the software and states that use of the software is conditional upon agreement to be bound by the Licensing Agreement.

The user can choose About in order to view the licensing agreement, choose Stop in order to exit the software, or choose Continue in order to proceed with software use to the Start Up screen.

The software automatically adjusts to the screen size and resolution being used to run it, and runs on all resolutions and screen sizes. Screens appear as large as possible, maximizing the "real estate" use on each monitor. Text on the screens is large and easy to read. The user may also manually adjust the screen size by clicking and dragging just as in other standard Windows applications. The standard Windows icons for resizing and closing an application can be invoked from the upper right hand corner of most screens.

Toolbar

Most screens in the Mine Risk Assessment group have a toolbar at the top of the screen. This toolbar indicates, in the far-left corner, the name under which the user is logged on. In addition, it has some or all of the following buttons:

a. English (used to view the English version of the screens, to print reports in English);

b. Français (used to view the French version of the screens, to print reports in French);

c. Font (used to change font; invokes a screen that has the functionality of the standard Visual Basic font dialog box);

d. Password (used to change the user password; the default password for users should not be blank upon install);

e. Back (used to navigate to the screen the user was just viewing before navigating to the current screen; note that Back always displays the most current information on the screen that it navigates to: Back may be enabled or disabled, and the default upon install is for it to be disabled);

f. Save (used to save the database and all associated files to the user defined path in administration and database update mode; used to save the input files and output / assessment reports in assessment mode; invokes a screen that has the functionality of the standard Visual Basic Save dialog box).

The Français and Back buttons may be disabled by the Administrator, in which case they are not visible to users. The user can dynamically switch back and forth between English and French at any time during software use. The toolbar will not be described again on the other screens on which it appears, as its functionality is identical on all screens. Shortcuts should be added to the toolbar functions and indicated by underlining as in the rest of the software.

Color is used by the software only on the screens, and not in the printed reports. The software is user friendly, and prompts users whenever actions are requested that may be less than optimal. For example, if a user is already working on an assessment and asks the software to start a new assessment, then the software prompts the user whether to save the earlier assessment prior to closing it and commence on the new one, or whether to disregard the request and continue processing the current assessment.

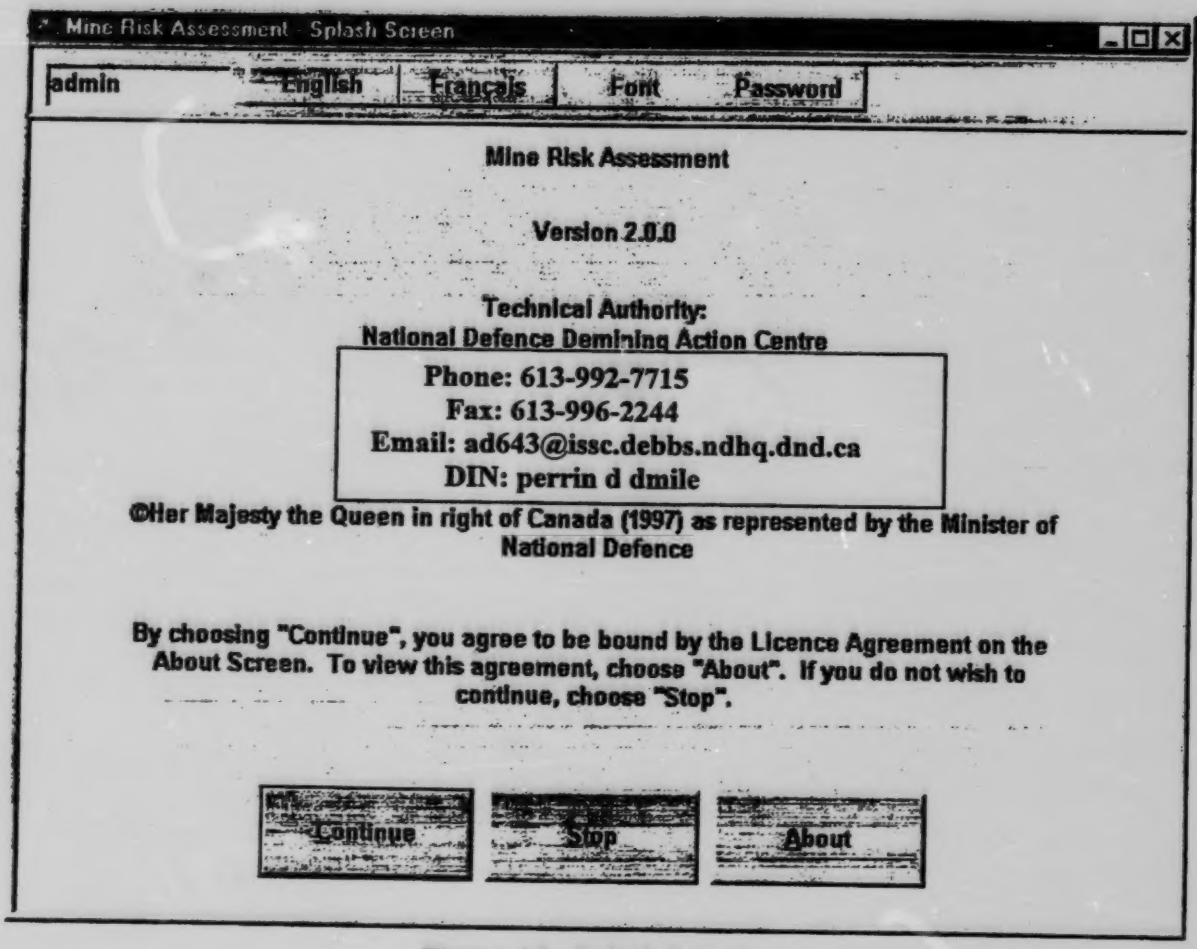
Mine Risk Assessment - Splash Screen
admin
English
Français
Font
Password
Mine Risk Assessment
Version 2.0.0
Technical Authority:
National Defence Demining Action Centre
Phone: 613-992-7715
Fax: 613-996-2244
Email: ad643@issc.debbs.ndhq.dnd.ca
DIN: perrin d dmile
©Her Majesty the Queen in right of Canada (1997) as represented by the Minister of National Defence
By choosing "Continue", you agree to be bound by the Licence Agreement on the About Screen. To view this agreement, choose "About". If you do not wish to continue, choose "Stop".
Continue
Stop
About

Figure A2: Splash Screen

Note: A picture of a mine is to be added to this screen, and is to act as the icon used to launch the MRA software as well as the icon to be used in the header for each screen.

Start Up Screen

The Start Up screen allows users to indicate what aspect of the software they wish to use. Users may choose:

a. Start Assessment (to conduct a mine risk assessment or recommence an assessment that has been interrupted but saved earlier);

b. Read/Print Documentation (to review documentation concerning how the software works and how the mine risk assessment is determined);

c. Database (to update the database e.g. to change the questions and answers asked during a risk assessment run, to change the documentation available to users);

d. Administration (to perform administrative tasks e.g. add new users);

e. Stop (to exit the software);

f. Add / Delete Users (to add new or delete existing users; this represents a new function based on the need to assign new users in the field without wishing to provide users in the field with access to administrator privileges; the screen which is shown when this option is selected is yet to be developed, but is expected to be like the "Privileges" section on the Administration screen).

The Administration and/or Database buttons may be disabled (represented as being grayed out) upon login. This indicates that the user does not have the privileges needed to access these software utilities.

On each screen, choosing the Stop button invokes a prompt asking whether or not to save files prior to exit, and another asking whether the user really wants to quit. The prompts remind the user to save files so as not to lose work prior to exiting and allow cancellation of the exit command if Stop was accidentally chosen. The save prompt appears only when there is something new to save.

The MRA Version 3 software is secured so that personnel without the correct access privileges cannot access and alter the MRA databases, whether it is through use of the MRA screens or any other means. Provisions are made for changing access privileges and passwords of users, and for instances in which users (including the Administrator) forget their passwords and cannot login.

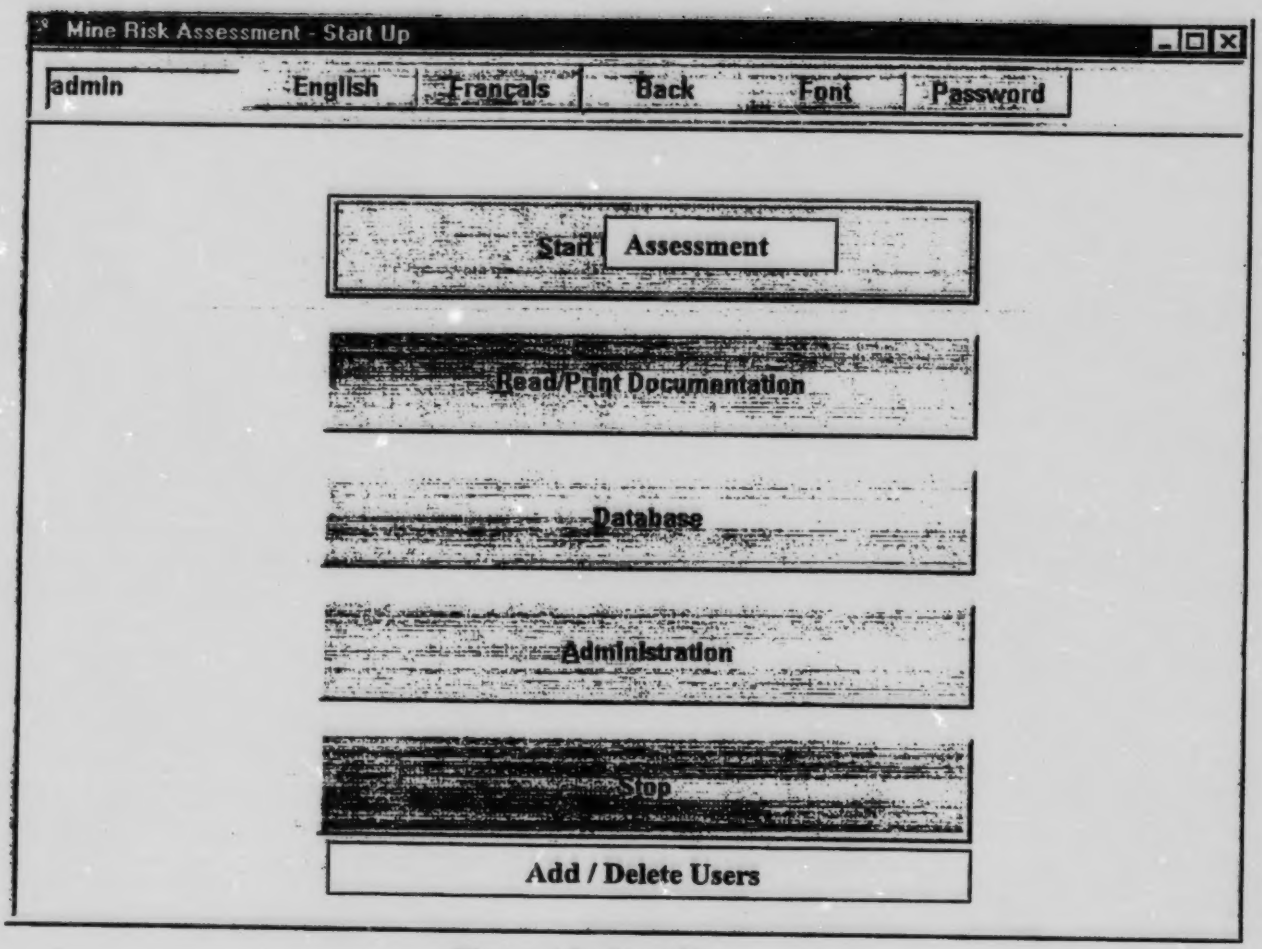

Figure A3: Start Up

Quit Screen

Whenever a user chooses Stop, the Quit screen appears asking the user to confirm that the user really does want to quit. If the user selects no, then the user is returned to the screen the Stop button was invoked from. If the user selects Yes, then the user exits the software (after having been prompted to save files if there was something new to save).

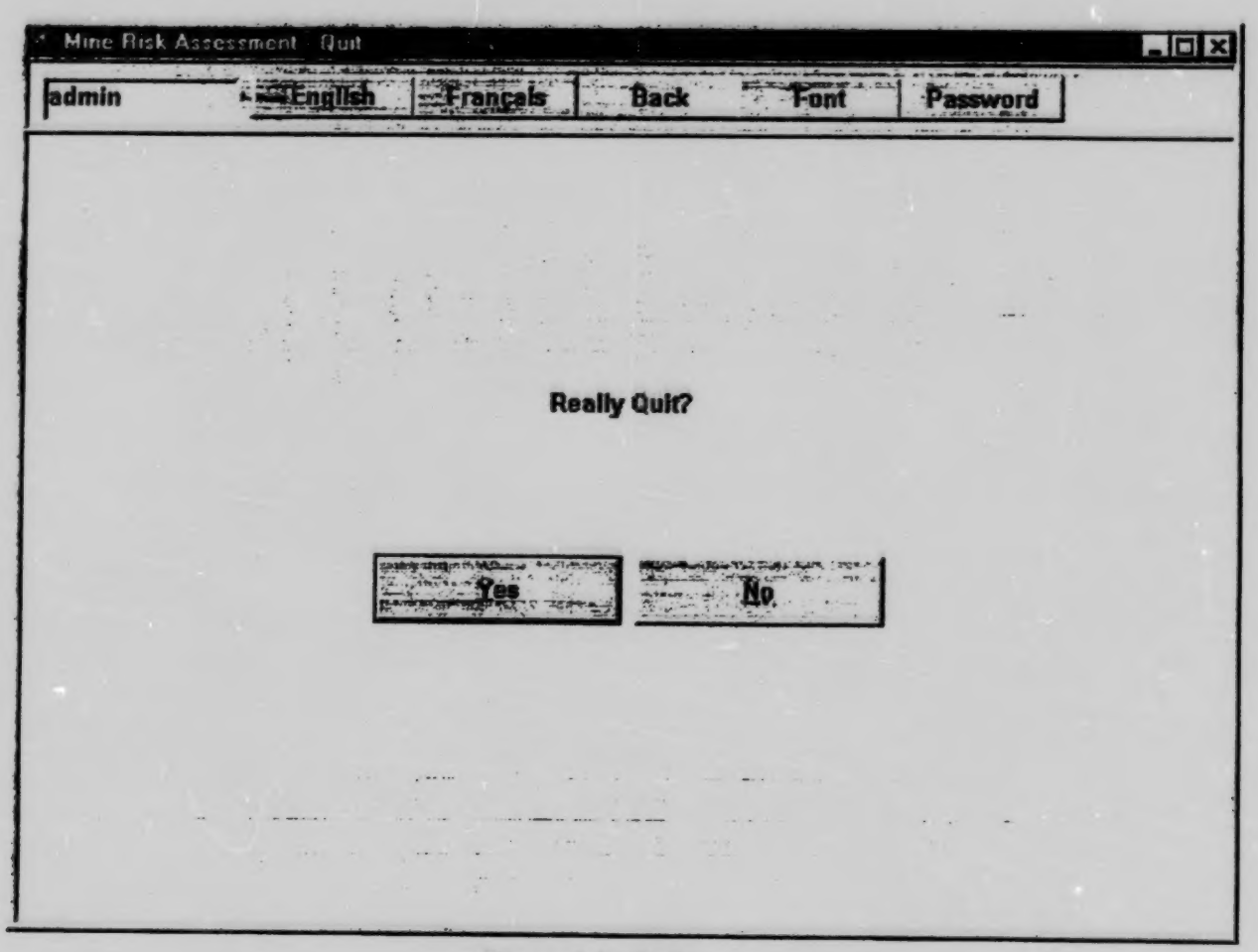

Figure A4: Quit

New Run or Use Existing Data Screen

If the user selects Start Assessment from the Start Up screen, then the user is taken to the New Run or Use Existing Data Screen. On this screen, the user can choose to:

a. Conduct a new assessment, or

b. Use an existing data file (that is, to load a previously saved case and work from that case).

The user can also choose to view and scroll through the help text box located near the bottom of the screen, to Stop (exit the software), or to navigate to the Start Up screen.

If a new assessment is selected, the Continue button becomes enabled. The enabling feature is shown visually by turning the command button text from gray to black. The user can either enter Case Details (Case Serial, Date, Location, and Description) or can leave the Case Details section blank. For a new assessment, the Name in the Case Details section is the name under which the user is signed on and it cannot be changed by typing into the corresponding text box. Continue takes the user to the Questions and Answers screen, with the first question in the database being displayed. If the user has not entered Case Details, the user will be prompted to do so if Continue is selected. The user can then select to enter the details or leave them blank.

If the user chooses to continue a previous assessment on an existing file, then the user is prompted for the path and file name to be loaded by the software. A screen with the functionality of the standard Visual Basic dialog box is used for this purpose. Error messages should be displayed if a user attempts to load a file that cannot be found. In addition, the software should have built in integrity checks and user friendly error messages which help ensure that the file being loaded is properly formatted and that it corresponds to the version of the software and database currently in use. Once the file is loaded, the Case Details information should be displayed on the screen. The user can view and / or modify this information. The Name shown in the Case Details section should be the name of the user who last saved the file being loaded. As well, the Position and Continue buttons should be enabled and this should be shown visually by having the corresponding text turn black from the former gray. The Continue button should take the user to the Question and Answers screen, with the first question in the database being displayed.

The Position button should be enabled only if an existing case is being used. It should allow the user to choose the question to which the user wishes to proceed on the Questions and Answers screen. For example, highlighting 28 in position and pressing Continue takes the user to the Question and Answers screen with the 28^{th} question in the database being displayed. The Position command should allow users to select more than one position at a time. To cycle quickly through several select questions, the user can use the Position and Back buttons together or may select more than one position at a time.

If an existing data file is in use and Conduct a new assessment is selected, then the software should prompt the user whether to save changes to the existing data file and whether to actually start a new assessment or ignore the request and continue using the loaded file.

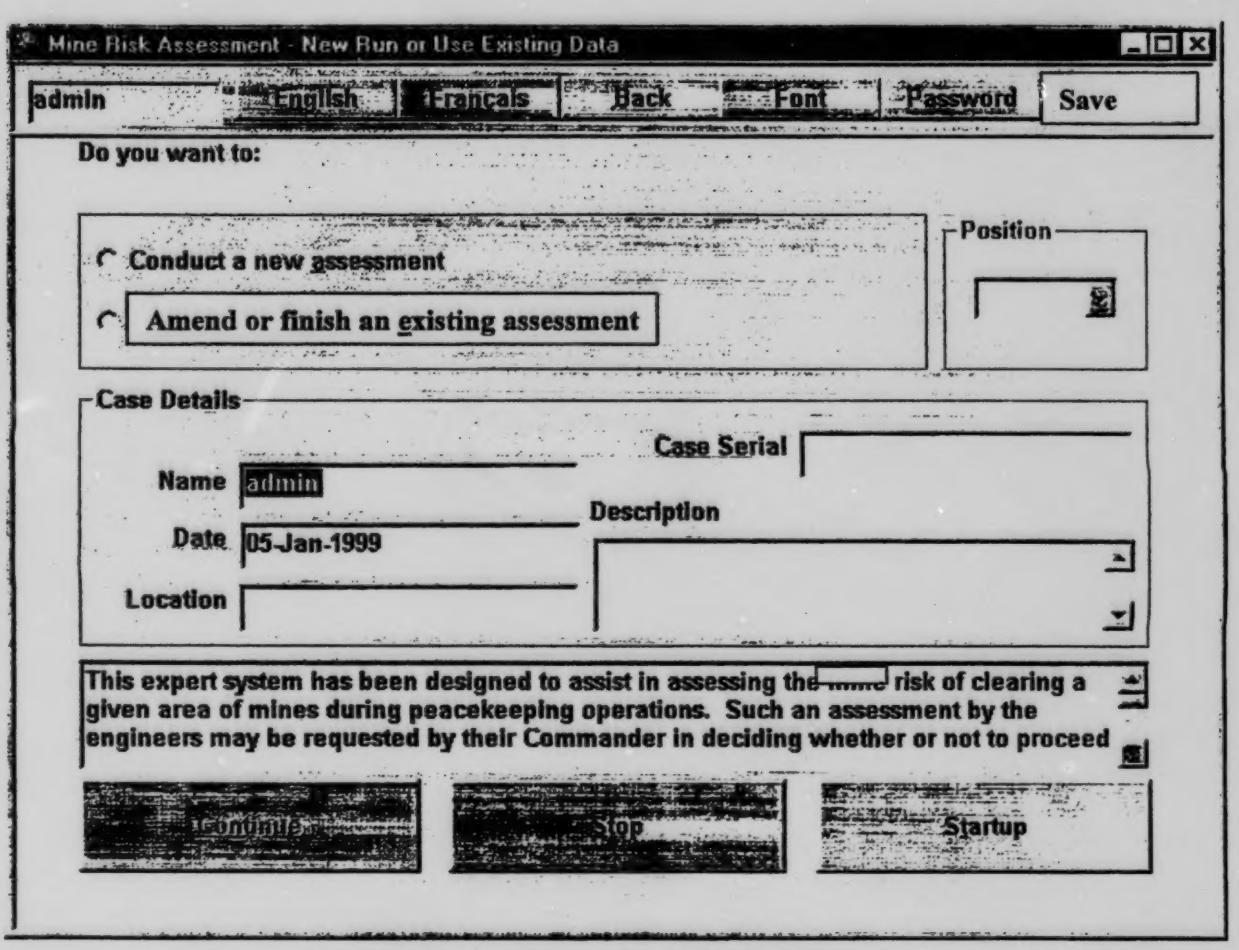

Figure A5: New Run or Use Existing Data

Questions and Answers Screen

The Questions and Answers screen should pose a series of questions to the user. Some questions should allow only a single response (radial checks), whereas others should allow multiple responses (square check boxes). Some questions should be skipped, depending on the user's answers to other questions. The Back button, if enabled, should allow users to cycle back through earlier questions or to return to the New Run or Use Existing Data screen in order to update Case Details.

Near the top of the screen, the question identifier along with the unique order number of the question should be displayed. The question, with scroll bars activated as needed, should be displayed under the identifier. The answers are listed below the question, with scroll bars and a downward pointing arrow appearing at the right hand side if all the possible answers could not fit onto the screen. If this is a new assessment, the default answer should be checked when a question is shown for the first time. If this is an assessment using an existing data file, then each question should have the answers from the corresponding data file checked for it. The user answers each question as desired, using the Continue button to move from one question to the next. Some answers should invoke warnings. The warning information should be shown to the user, and the user can take it into account however the user sees fit. The user should still be able to keep an answer despite a warning.

The answer boxes have been designed so that it is simple to select them, as the area to be clicked on is large and consists of more than just the area of the radial or check box. Once all questions are answered, selecting Continue should navigate the user to the Review and Change Answers screen.

Explanations for each question and answer set should be provided in the help box near the bottom of the screen. Users can scroll through this text to ensure that they are interpreting the meaning of the questions and answers properly. At any time, the user should be able to choose the Add User Comment button. This allows the user to add or modify comments to the question and answer set the user is currently working on. These comments can be saved and printed out in a report.

The user can also select Stop (to exit the application), Save Files (to save all files related to the assessment including questions, answers, suggestions for enhancement, case details, and assessment reports generated by the application), or Print Questions and Answers (to invoke a screen with the functionality of the standard Visual Basic Print Dialog box).

The software should allow for an unlimited number of questions and an unlimited number of answers, all of unlimited length. Practical limits are, however, imposed by the cognitive needs of the application's users.

The default answer to a question is "No Answer" provided that "No Answer" is a valid response to the question.

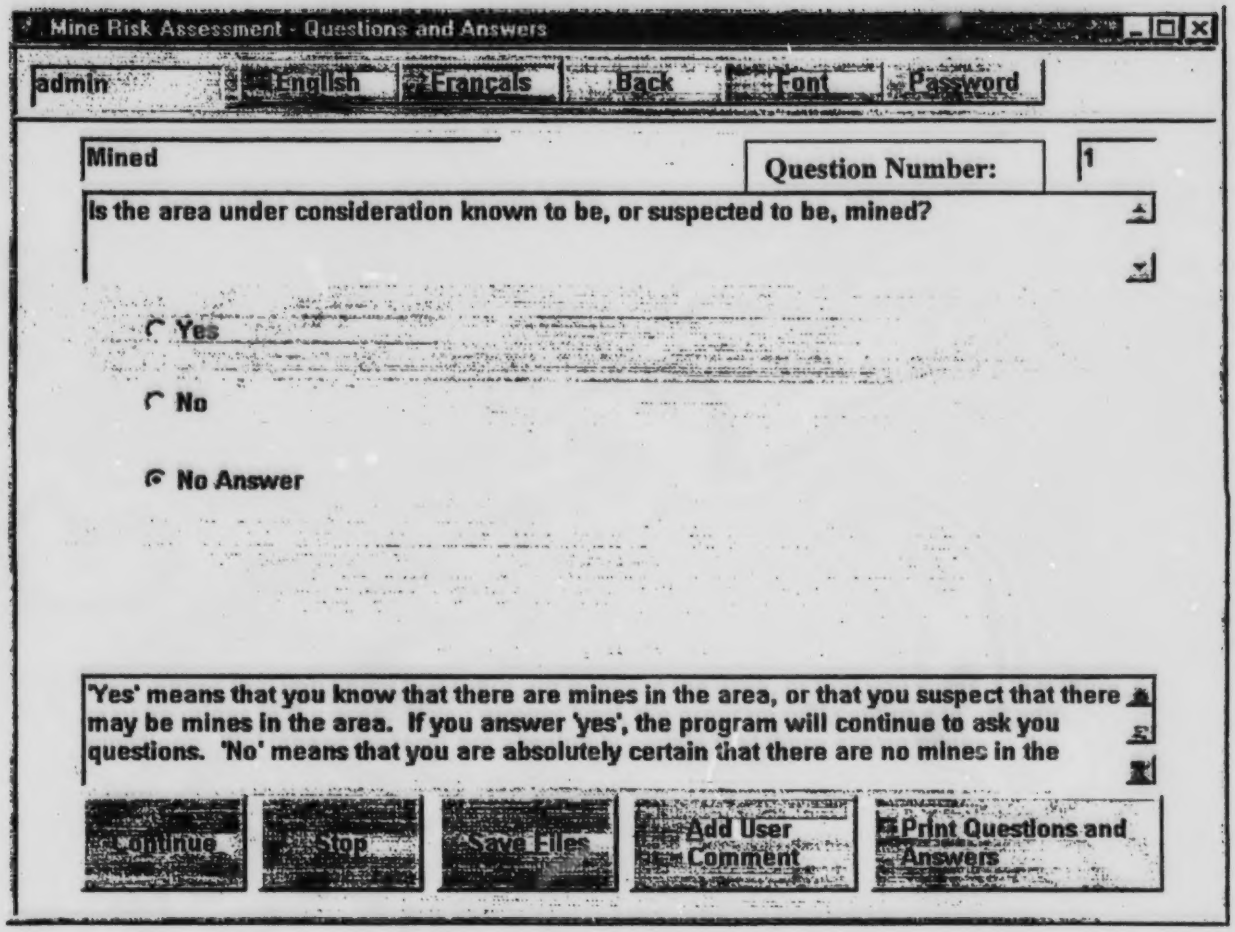
Mine Risk Assessment - Questions and Answers
admin
English
Français
Back
Font
Password
Mined
Question Number:
1
Is the area under consideration known to be, or suspected to be, mined?
Yes
No
No Answer
'Yes' means that you know that there are mines in the area, or that you suspect that there may be mines in the area. If you answer 'yes', the program will continue to ask you questions. 'No' means that you are absolutely certain that there are no mines in the
Continue
Stop
Save Files
Add User Comment
Print Questions and Answers

Figure A6: Questions and Answers

Warning Screen

Some answers on the Questions and Answers screen have warnings associated with them. The warning screen and appropriate warning message should appear whenever the user selects such an answer.

On the Warning screen, the user should be able to select to Continue (to return to the screen from which the warning was invoked), Stop (to exit the application), Save Files (to save all files), or Print Warning (to invoke a screen with the functionality of the standard Visual Basic Print Dialog box).

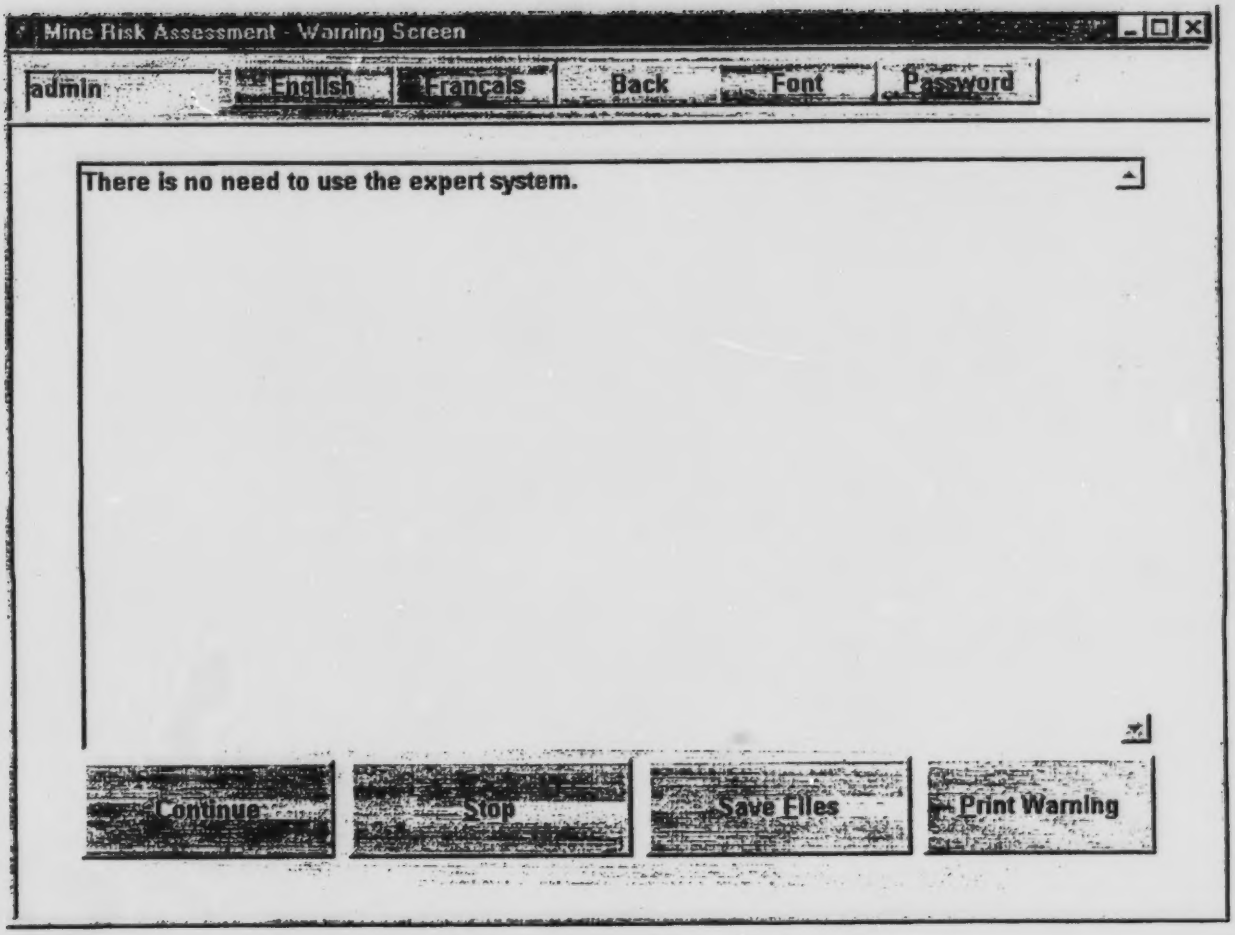

Figure A7: Warning Screen

Review and Change Answers Screen

Once all questions have been answered, selecting the Continue button should take the user to the Review and Change Answers screen. At this time, the risk levels associated with the user's answers are shown to the user for the first time.

Near the middle of the screen, the question identifier should be displayed. Under the identifier should be the question itself, with the scroll bars enabled if necessary. The possible answers to that question should be listed beneath the question, with the user answer(s) highlighted and scroll bars enabled if needed. Underneath the answers should be the overall risk associated with that question and answer set and the color assigned to that risk level. If the user wishes to change an answer, the user should select Change Answer. That action should take the user to the Questions and Answers screen, with the appropriate question and answer set being shown. The user should then be able to change the answer(s) if desired, and select Continue to return to the Review and Change Answers screen with the current question still being displayed and the corresponding answer updated if changes were made.

If the user wishes to make changes to other question and answer sets or to review the risks associated with each set, the user should select More Changes. The user keeps selecting More Changes to cycle through the question and answer set, choosing Change Answer whenever it is desired to modify the original responses. If no more modifications are desired, the user selects No More Changes. This action should lead the user to the Risk Assessment screen. If the user has cycled through all the question and answer sets and chooses More Changes, then the user should be told that all questions have been cycled through and should be given the option of either recycling through all the questions from the start again or of proceeding to the Risk Assessment screen.

At any time, the user should also be able to select to Save Files (to invoke a screen with the functionality of the standard Visual Basic Save Dialog box and save all files) or to Stop (to exit the application).

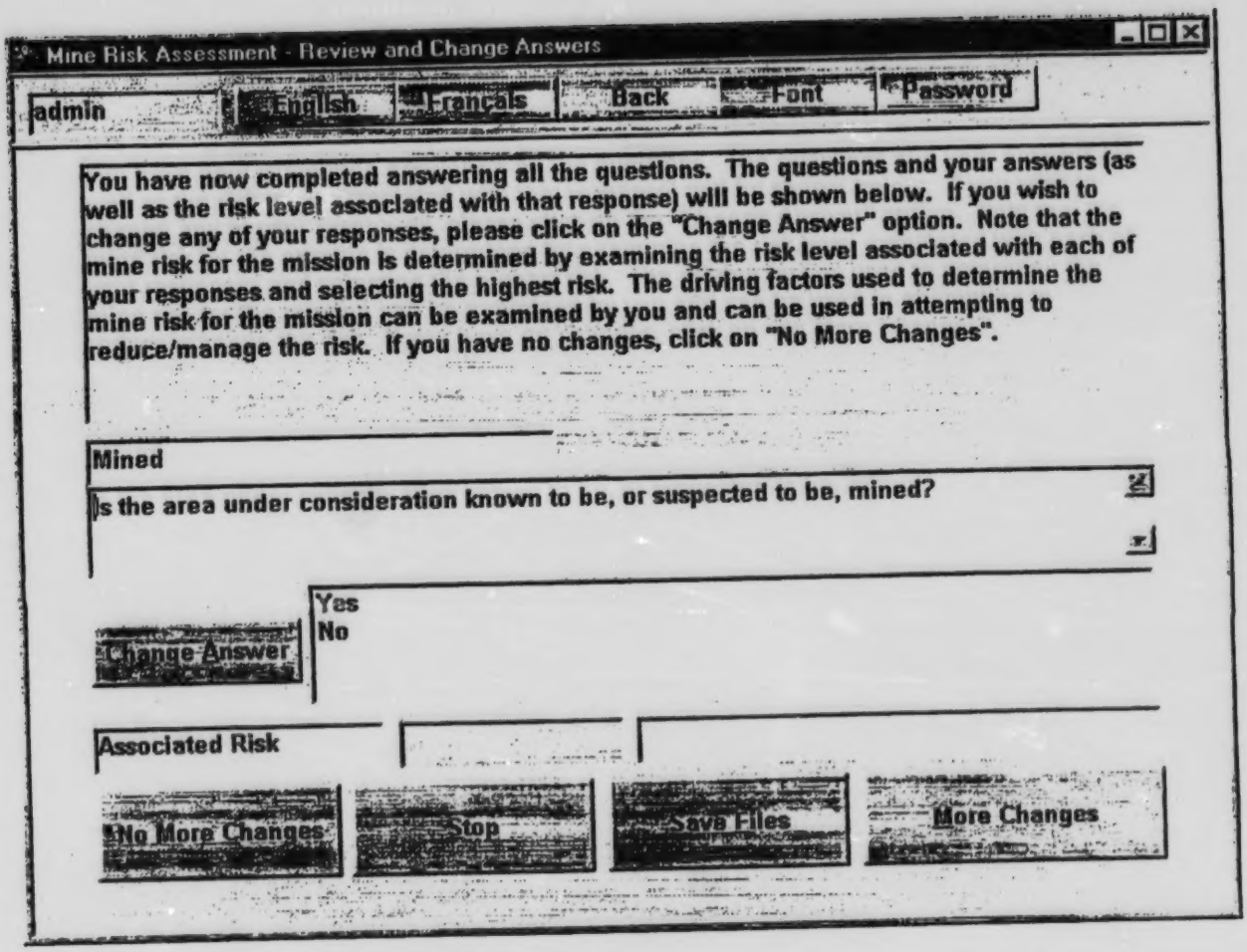
Mine Risk Assessment - Review and Change Answers
admin
English
Francais
Back
Font
Password
You have now completed answering all the questions. The questions and your answers (as well as the risk level associated with that response) will be shown below. If you wish to change any of your responses, please click on the "Change Answer" option. Note that the mine risk for the mission is determined by examining the risk level associated with each of your responses and selecting the highest risk. The driving factors used to determine the mine risk for the mission can be examined by you and can be used in attempting to reduce/manage the risk. If you have no changes, click on "No More Changes".
Mined
Is the area under consideration known to be, or suspected to be, mined?
Yes
No
Change Answer
Associated Risk
No More Changes
Stop
Save Files
More Changes

Figure A8: Review and Change Answers

Risk Assessment Screen

The Risk Assessment screen should provide the user with the expected mine risk for the task under consideration and a listing of the key factors used to arrive at that expected risk. This information should be displayed only if the user has provided answers to all the relevant questions. If some relevant questions remain unanswered, then the key factors box should be blank and the expected assessment box should contain the statement "Cannot be Determined (You should answer all questions for an assessment.)". If some questions remain unanswered the user should still be able to, by using the command buttons discussed below, access partially completed reports (which have no overall risk assessment) produced by the assessment portion of the application. For example, the user can use the reports to determine which answers have been given and which questions are yet to be responded to, to view the case details, and to determine the individual risks associated with the responses given to date.

Near the middle of the screen there should be a caveat for the user. Under the caveat is a help file the user can scroll through to better understand the assessment generated by the application.

To obtain a fuller assessment result, the user should be able to choose:

a. View Details (to proceed to the Details for Risk Management screen),

b. Display Reports (to proceed to the Report Preview screen), or

c. Print Reports (to select from a list of reports to be printed and to obtain a screen with the functionality of the standard Visual Basic Print Dialog box, and to commence the printing process).

The user should also be able to select Continue (to proceed to the Suggestions for Enhancements screen), Stop (to exit the application), or Save Files (to obtain a screen with the functionality of the standard Visual Basic Save Dialog box, and to save all files).

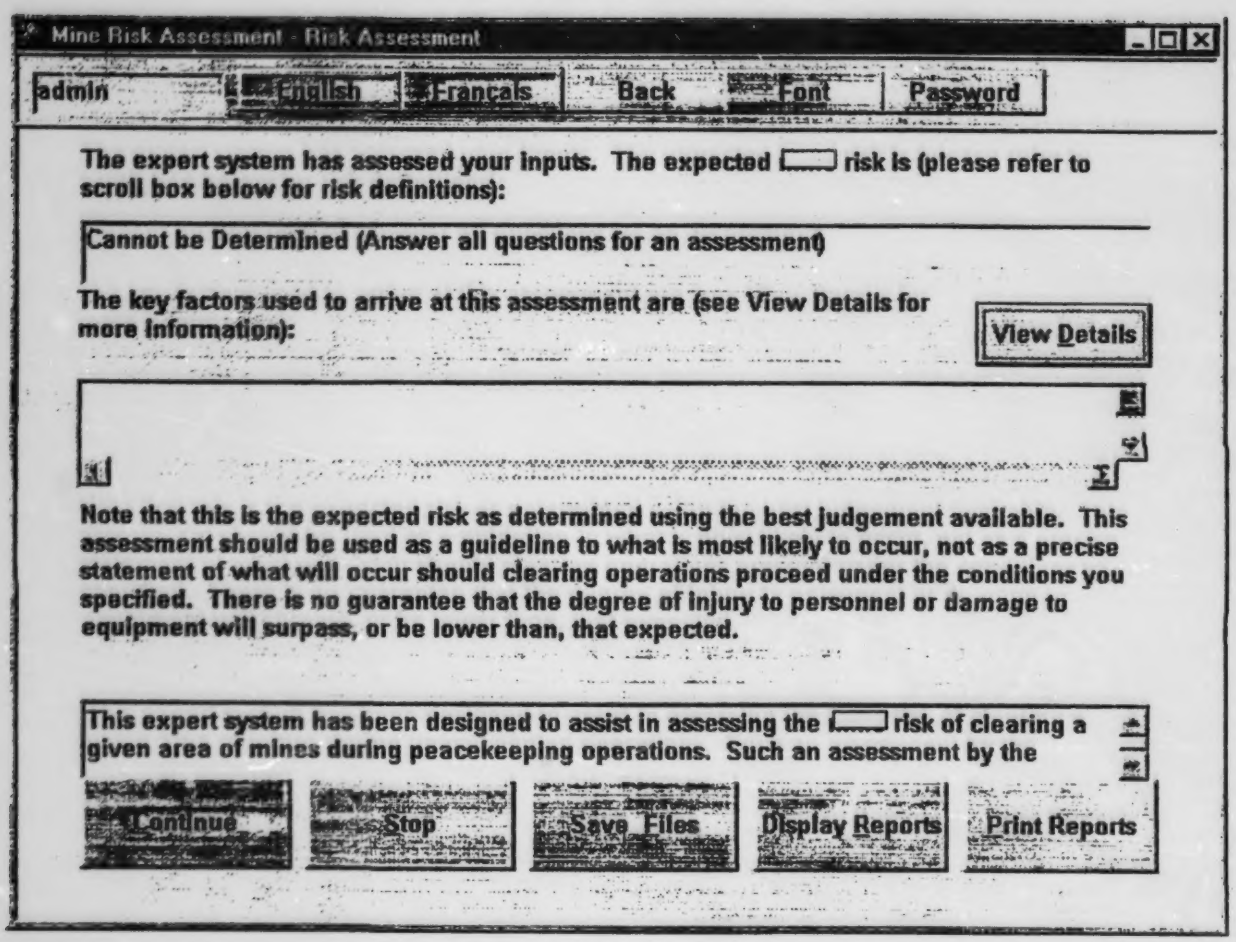
Mine Risk Assessment - Risk Assessment
admin
English
Francais
Back
Font
Password
The expert system has assessed your inputs. The expected risk is (please refer to scroll box below for risk definitions):
Cannot be Determined (Answer all questions for an assessment)
The key factors used to arrive at this assessment are (see View Details for more information):
View Details
Note that this is the expected risk as determined using the best judgement available. This assessment should be used as a guideline to what is most likely to occur, not as a precise statement of what will occur should clearing operations proceed under the conditions you specified. There is no guarantee that the degree of injury to personnel or damage to equipment will surpass, or be lower than, that expected.
This expert system has been designed to assist in assessing the risk of clearing a given area of mines during peacekeeping operations. Such an assessment by the
Continue
Stop
Save Files
Display Reports
Print Reports

Figure A9: Risk Assessment

Details for Risk Management

The Details for Risk Management screen should provide a listing, by risk level, of the factors considered during the assessment. The listing should be ordered by risk level, with the highest risk level appearing uppermost on the screen. Each risk level name and associated color should be shown on the left of the screen. To the right should be the factors associated with the risk level at the left. These groupings provide a simple means for the user to assess, mitigate, and possibly even reduce the risk for the given task. Scroll bars should be activated, as required, so that all factors within a grouping can be read, and so that all risk levels (except for the "No Risk Category") can be viewed. The horizontal scrolling is cumbersome, and it is preferred to have a design where the text automatically wraps to the next lines as needed so that there is no need for horizontal scrolls.

Near the bottom of the screen there should be a text box with help information through which the user can scroll. At any time the user may select:

a. Continue (to return to the Risk Assessment screen),

b. Stop (to exit the application),

c. Save Files (to save all files through use of a screen with the functionality of the standard Visual Basic Save Dialog box),

d. Display Reports (to proceed to the Report Preview screen), or

e. Print Reports (to choose among a list of reports the ones to be printed and to invoke a screen with the functionality of the standard Visual Basic Print Dialog box, and to have the reports printed).

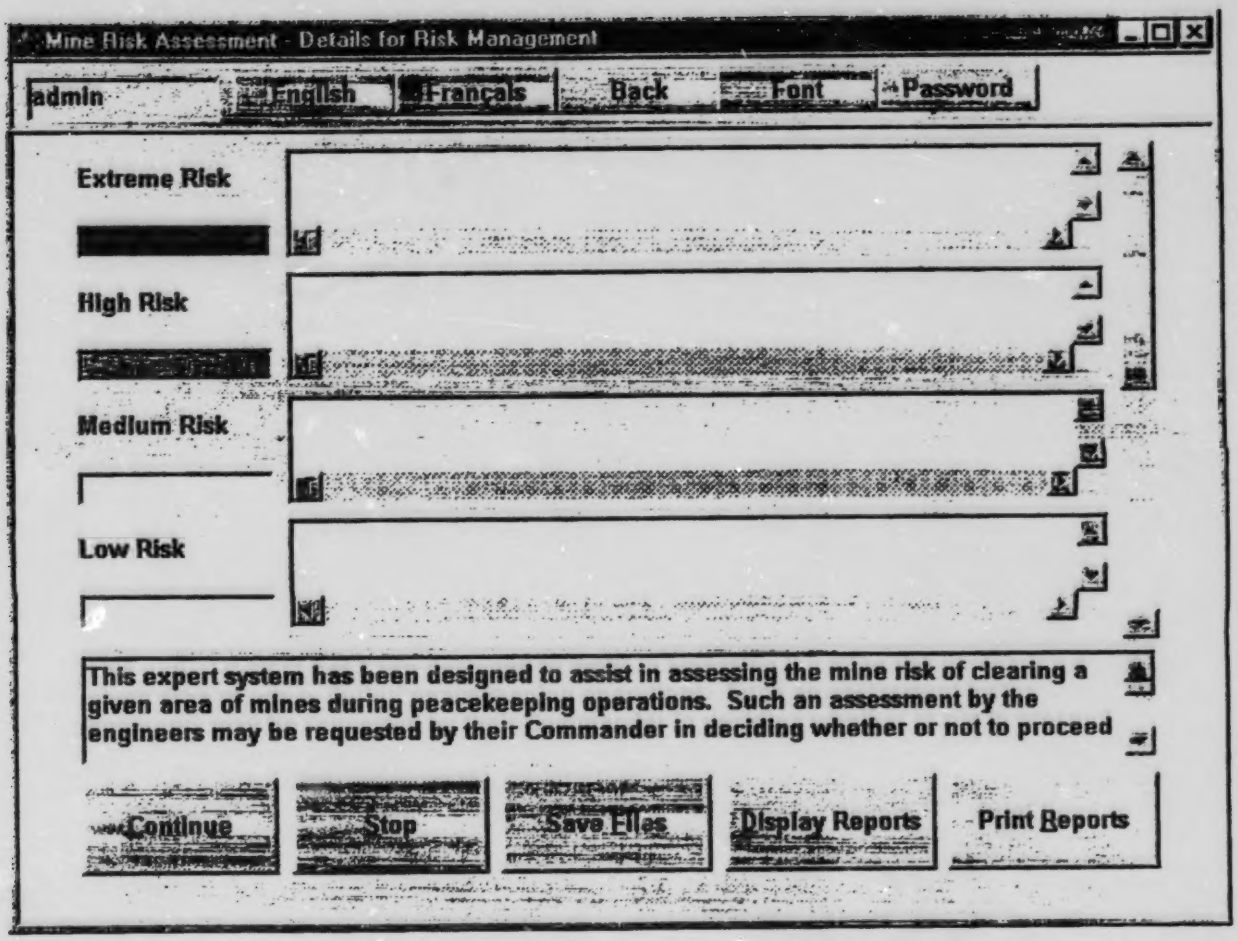
Mine Risk Assessment - Details for Risk Management
admin
English
Français
Back
Font
Password
Extreme Risk
High Risk
Medium Risk
Low Risk
This expert system has been designed to assist in assessing the mine risk of clearing a given area of mines during peacekeeping operations. Such an assessment by the engineers may be requested by their Commander in deciding whether or not to proceed
Continue
Stop
Save Files
Display Reports
Print Reports

Figure A10: Details for Risk Management

Report Preview Screen

The Report Preview screen is used for viewing reports. When the screen is first invoked, it should display the Mine Risk Assessment report, with the top of the report at the top of the screen. Users should be able to choose to view other reports, selecting choices from a predefined list, through use of the Display Reports button at the bottom of the screen. The default on all screens with reports should be to show each report from its top, and allow the user to scroll through the report to its end.

In addition to viewing the reports, users should be able to:

a. access help information by scrolling through the help textbox near the bottom of the screen,

b. choose Continue (to proceed to the Suggestions for Enhancement screen),

c. choose Stop (to exit the application),

d. choose Save Files (to save all files through use of a screen with the functionality of the standard Visual Basic Save dialog box; these files may be imported into a word processor and used in the preparation of a customized report),

e. choose Print Reports (to invoke a list from which the selection to be printed needs to be highlighted, and then to conduct the printing through use of a screen with the functionality of the standard Visual Basic Print dialog box).

If the user is working in English and wishes to save, view or print reports in French, then the user should be able to use the toolbar to switch between languages and to save, view and print in the language of choice.

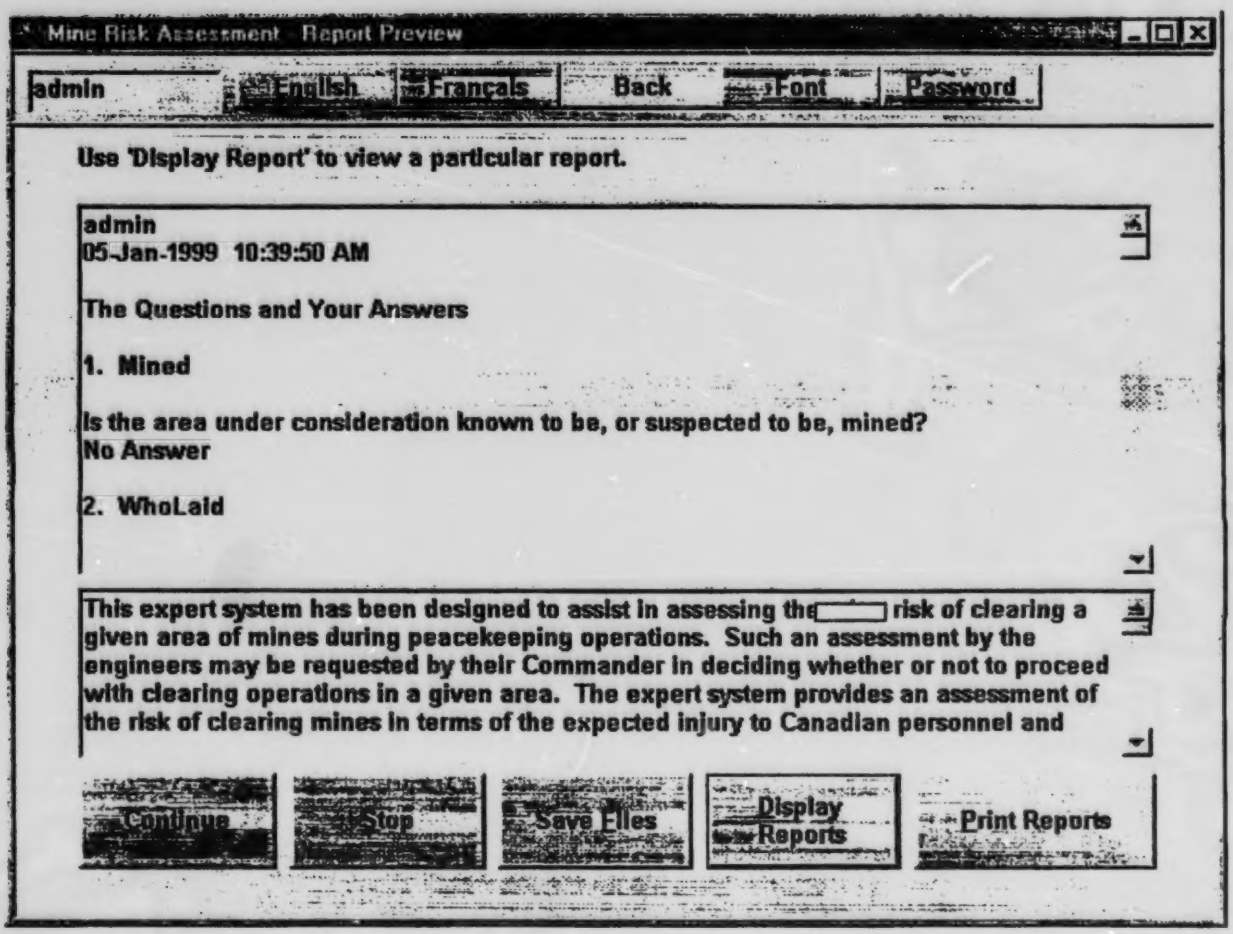
Mine Risk Assessment - Report Preview
admin
English
Francais
Back
Font
Password
Use 'Display Report' to view a particular report.
admin
05-Jan-1999 10:39:50 AM
The Questions and Your Answers
1. Mined
Is the area under consideration known to be, or suspected to be, mined?
No Answer
2. WhoLaid
This expert system has been designed to assist in assessing the risk of clearing a given area of mines during peacekeeping operations. Such an assessment by the engineers may be requested by their Commander in deciding whether or not to proceed with clearing operations in a given area. The expert system provides an assessment of the risk of clearing mines in terms of the expected injury to Canadian personnel and
Continue
Stop
Save Files
Display Reports
Print Reports

Figure A11: Report Preview

Suggestions for Enhancement Screen

On the Suggestions for Enhancement screen, the user should be able to type in comments, if desired. The application should automatically invoke the scroll bars as needed, and the comments should be as long as the user wishes, with paragraphs indented.

In addition, the user should be able to choose to:

a. Continue (to proceed to the Wrap-Up screen),

b. Stop (to exit the application),

c. Save Files (to save all files through use of a screen with the functionality of the standard Visual Basic Save dialog box),

d. Print Comments (to print the comments typed in by the user through use of a screen with the functionality of the standard Visual Basic Print dialog box).

Note that user comments are saved to file, if the user chooses to save. If the application is exited and then reentered, using the saved data files, the comments typed in on this screen are loaded back in to the software. The user should be able to add to and modify these earlier comments, if desired.

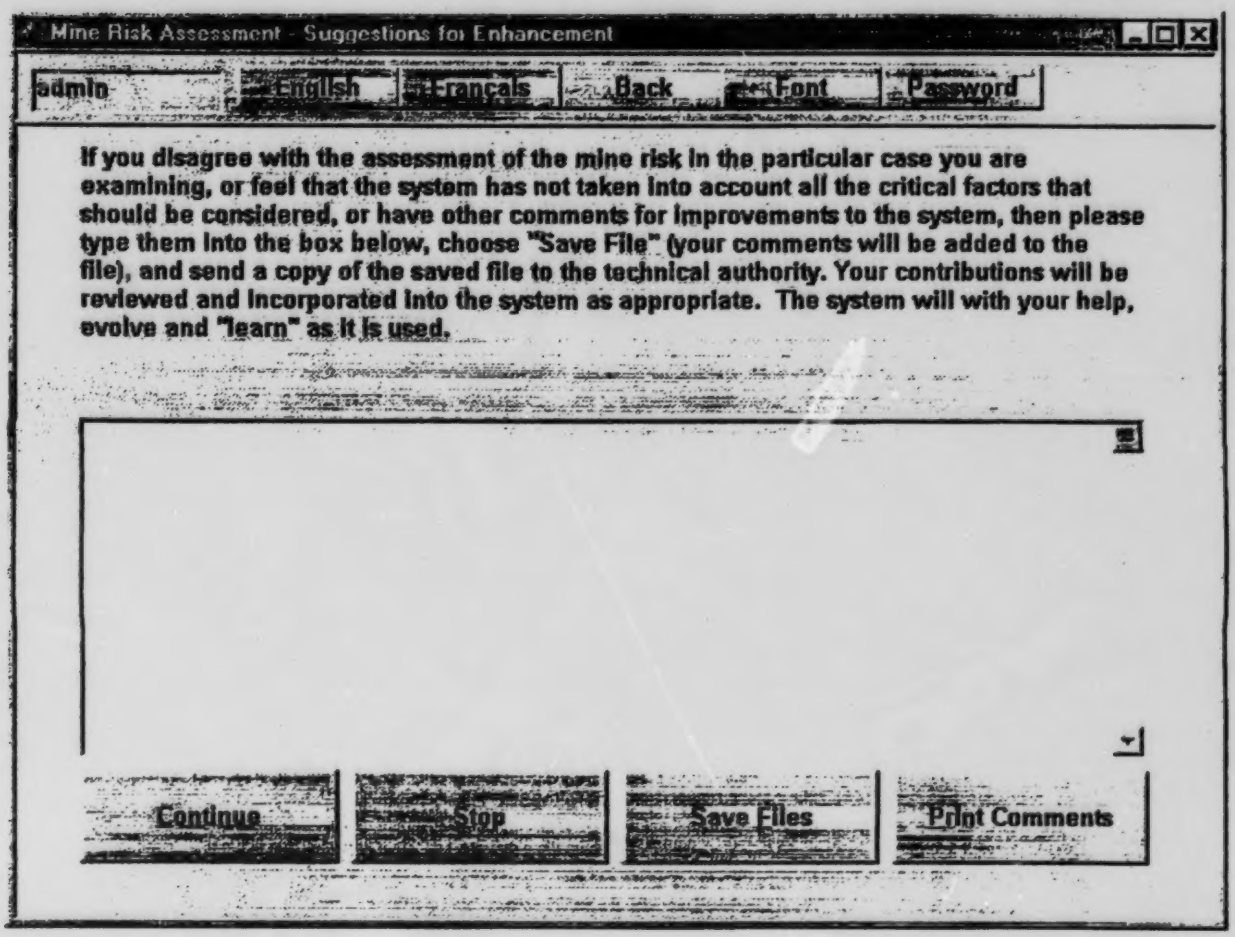
Mine Risk Assessment - Suggestions for Enhancement
admin
English
Francais
Back
Font
Password
If you disagree with the assessment of the mine risk in the particular case you are examining, or feel that the system has not taken into account all the critical factors that should be considered, or have other comments for improvements to the system, then please type them into the box below, choose "Save File" (your comments will be added to the file), and send a copy of the saved file to the technical authority. Your contributions will be reviewed and incorporated into the system as appropriate. The system will with your help, evolve and "learn" as it is used.
Continue
Stop
Save Files
Print Comments

Figure A12: Suggestions for Enhancement

Wrap-Up Screen

After completing a full run using the application, the user should have the choice of:

a. Save File (to save all files through use of a screen with the functionality of the standard Visual Basic Save dialog box),

b. Print Reports (to invoke a list of reports from which the ones to be printed are to be chosen, and then invoke a screen with the functionality of the standard Visual Basic Print dialog box to print the reports; the reports can be printed in either English or French or both through toggling between languages using the buttons on the top toolbar),

c. Start a New Assessment (to return to the New Run or Use Existing Data screen and either begin a new assessment from "scratch" or to run an assessment by loading an existing case file),

d. Stop (to exit the application).

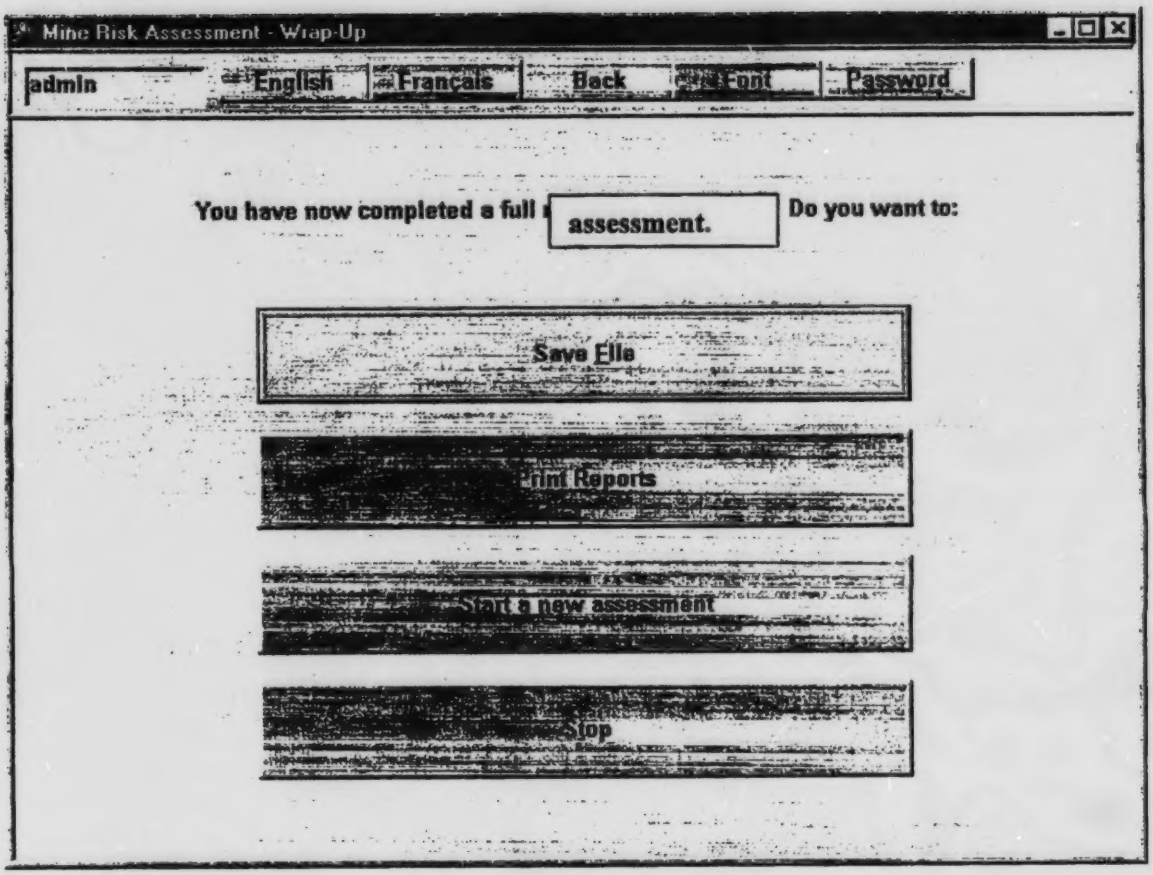

Figure A13: Wrap-Up

Documentation Screens

The documentation screens allow users to familiarize themselves with topics that should be understood in order to properly apply and understand the outputs of the MRA software.

Read and Print Documentation Screen

The Read and Print Documentation screen should allow users to read and print general interest documentation. This documentation is different from the help files that are associated with each question and answer set and are located on the Questions and Answers screen. Choosing the Read/Print Documentation button invokes this screen.

In the center of the Read and Print Documentation screen, there should appear a list of help topics that can be reviewed by the user. The software should allow for an unlimited number of help topics, each topic of unlimited length. If all the topic names cannot fit onto the screen, then scroll bars should appear to the right of the help topic text box.

Users should be able to choose to read and or print one or more topics. If printing is desired, the language for printing should be selected. English, French, or both languages may be highlighted for the print option. If no language is highlighted and Continue is chosen, then the software chooses the default language, which is the one the user is currently working in. The Print Option invokes a screen with the functionality of the standard Visual Basic Print Dialog box. The Print to File option on this screen allows users to save the documentation to a text file, if so desired.

In addition to selecting to read and / or print, the user should be able to choose:

a. Continue (to start printing the selection chosen for printing (if any), and to start reading the help topic information for each topic selected (if any) by proceeding to the Documentation screen),

b. Stop (to exit the application),

c. Start Assessment (to proceed to the New Run or Use Existing Data screen and begin a risk assessment),

d. Startup (to invoke the Start Up screen).

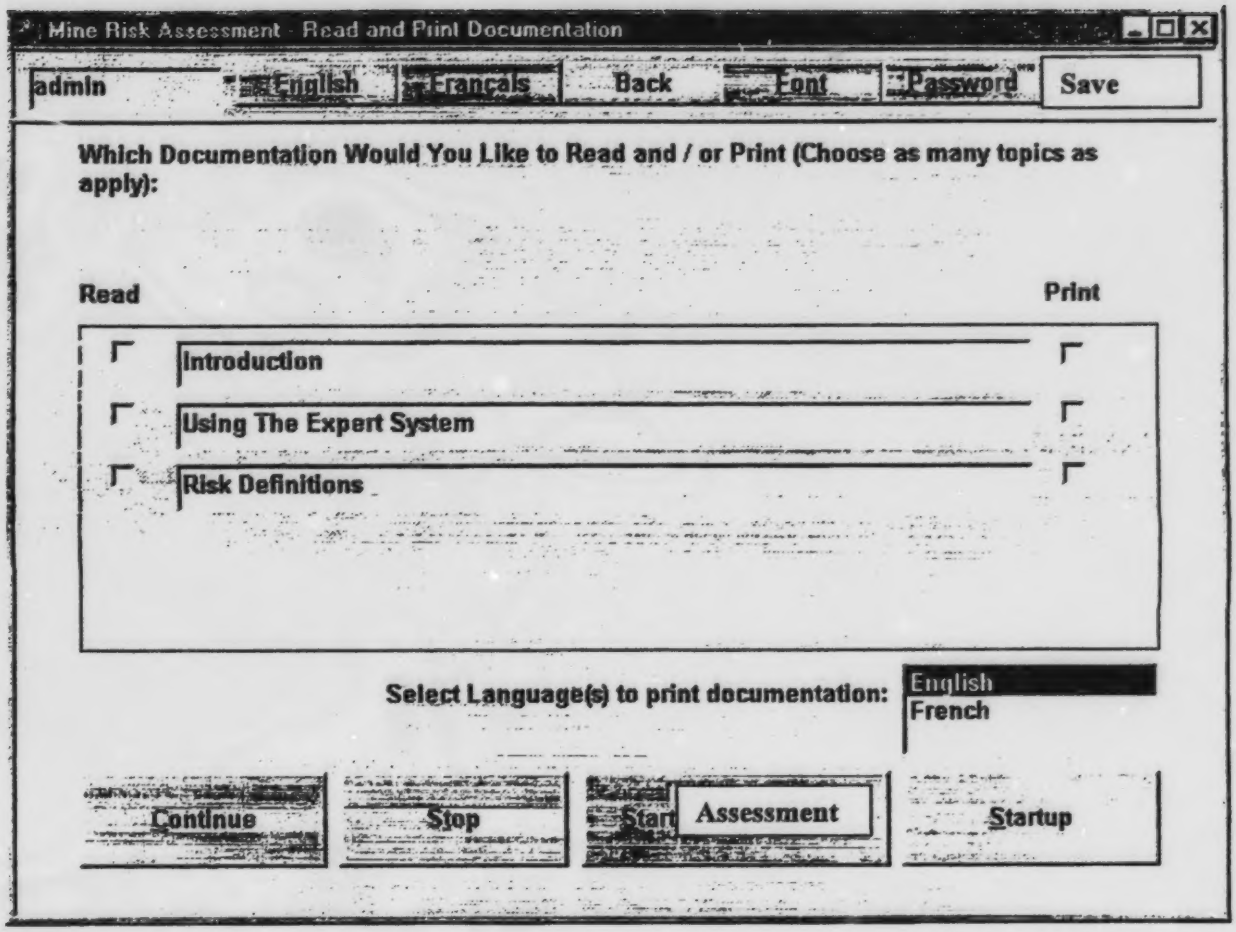

Figure A14: Read and Print Documentation

Documentation Screen

The topics selected for reading on the Read and Print Documentation screen should be available for review on the Documentation screen. The topic name should appear near the top of the Documentation screen, followed by the text associated with that topic. Users should be able to use scroll bars to review the topic. Choosing Continue should show the next topic the user chose in the Read list on the Read and Print Documentation screen or, if no topics are left to be read, it should return the user to the Read and Print Documentation screen. The user has the capability to print the entire topic or only the portion highlighted by the user during the user's viewing of the topic. The default is to print the entire topic. The Print function on this, as on other screens, has all the functionality of the standard Visual Basic Print dialog box, including the ability to print to file.

The user should also be able to choose:

a. Start Assessment (to proceed to the New Assessment or Use Existing Data screen and begin a risk assessment),

b. Print Topic (to invoke a screen with the functionality of the standard Visual Basic Print dialog box to print the topic under review),

c. Back (to return to the screen and information viewed just prior to proceeding to the screen the user is currently on).

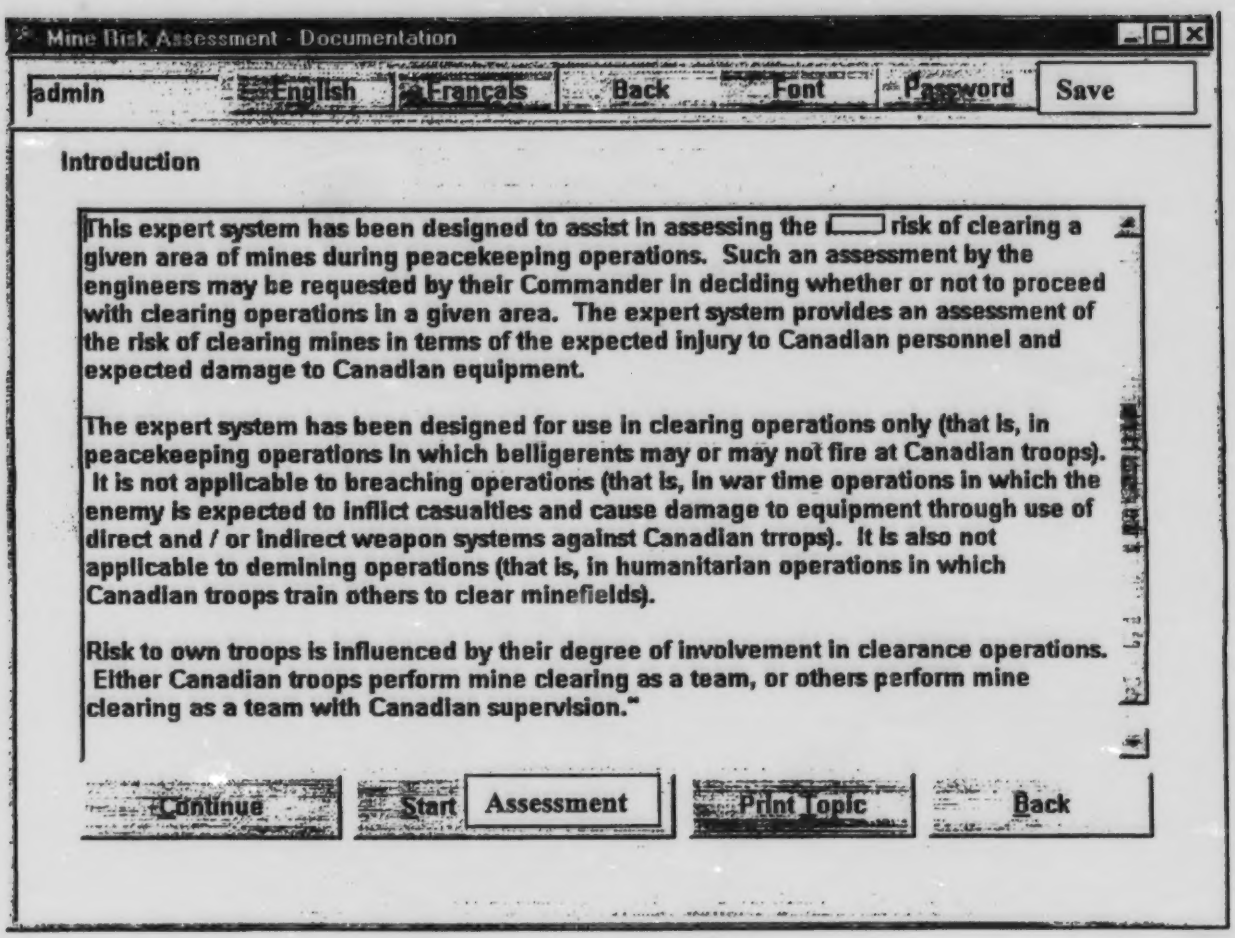
Mine Risk Assessment - Documentation
admin
English
Francais
Back
Font
Password
Save
Introduction
This expert system has been designed to assist in assessing the risk of clearing a given area of mines during peacekeeping operations. Such an assessment by the engineers may be requested by their Commander in deciding whether or not to proceed with clearing operations in a given area. The expert system provides an assessment of the risk of clearing mines in terms of the expected injury to Canadian personnel and expected damage to Canadian equipment.
The expert system has been designed for use in clearing operations only (that is, in peacekeeping operations in which belligerents may or may not fire at Canadian troops). It is not applicable to breaching operations (that is, in war time operations in which the enemy is expected to inflict casualties and cause damage to equipment through use of direct and / or indirect weapon systems against Canadian trrops). It is also not applicable to demining operations (that is, in humanitarian operations in which Canadian troops train others to clear minefields).
Risk to own troops is influenced by their degree of involvement in clearance operations. Either Canadian troops perform mine clearing as a team, or others perform mine clearing as a team with Canadian supervision."
Continue
Start Assessment
Print Topic
Back

Figure A15: Documentation

Administrator Screens

The Administrator screens should allow for the conduct of administrative tasks by users who have administrative privileges.

Administration Screen

In the Options box near the top of the Administration screen, the user should be able to:

a. choose to enable or disable the View global back function (that is, to display or to hide the Back button on the top toolbar on all screens which relate to running a mine risk assessment; other screens should not be affected by this choice and they should have the Back enabled on their toolbars at all times; Back buttons located outside the toolbar should also not be affected by this choice),

b. choose to enable or disable Allow access to French translation (that is, to display or hide the English and Français buttons on all screens which relate to the running of a mine risk assessment; other screens should not be affected by this choice and should have the language buttons enabled at all times; this feature should allow operation of the software in English mode only while the changes to the database are being translated in French),

c. choose to enable or disable Show administrative messages (that is, to display or not display the administrative messages during the operation of the application; experienced users may wish to have the messages turned off whereas novice users may wish to have them on),

d. choose to enable or disable Test Product Message (that is, to display or not display, the test product message; while the application is a test product this message should always be displayed),

e. choose Backup Database (to backup all relevant parts of the MRA version 3 databases in case of hard drive failure or for use in historic analysis at a future date; invokes a screen with the functionality of the standard Visual Basic Save Dialog box and ensures all relevant files are saved),

f. choose Select Database (to choose among several existing database versions, the database version to be used in running the software).

In the Privileges box near the bottom of the screen, the current users are to be listed on the left side, and the privileges that can be assigned to users in addition to that of conducting assessments, are to be listed on the right. In this box the user should be able to:

a. Choose New (to add a new user),

b. Choose Delete (to delete an existing user; the user should be asked to confirm that the delete is to take place prior to actual deletion),

c. Choose Clear Password (to clear the password of an existing user; this feature may be used for users who have forgotten their passwords; the administrator uses this feature to reset the user's password and then the user logs on with the reset password and changes this password using the Password button on the toolbar of the Start Up (or other) screen; the user should be asked to confirm that the clear is to take place prior to actual clearing of the password).

When a new user is added, an initial password is assigned to that user for login. This password should be changed the first time the user logs in, by using the Password button on the toolbar. The application should have a built-in prompt forcing the user to change an administrator set password upon login.

When a new user is added, the user should automatically have the privilege to access the mine risk assessment and documentation screens. If administrator or database update privileges are to be assigned (or taken away) from a user, this should be done by choosing (that is, highlighting) the appropriate selection from among Admins and Updater in the list at the right hand side.

As new users are added, they should be listed in the order in which they have been entered into the system.

On the Administration screen, the user should also be able to choose:

a. Continue (to return to the Start Up screen),

b. Stop (to exit the application),

c. Splash (to invoke the Copyright Contents screen),

d. Tree Diagram (to invoke the Tree Diagram screen).

The information on the Splash screen should correspond to the information entered for select fields in the Copyright Contents screen. The information on the Tree Diagram screen should correspond to the information entered in the Database Update screens. The Tree Diagram screen is a useful tool to view the content and structure of the knowledge base comprising the component of the application used to determine the mine risk. It should allow the user to view the questions asked of the user during an assessment run, the answers allowed for each question, the risks associated with each question and answer pair, and exclusions (if any) for each question and answer pair. The tree diagram should automatically be updated as questions, answers, and associated risks are changed within the database.

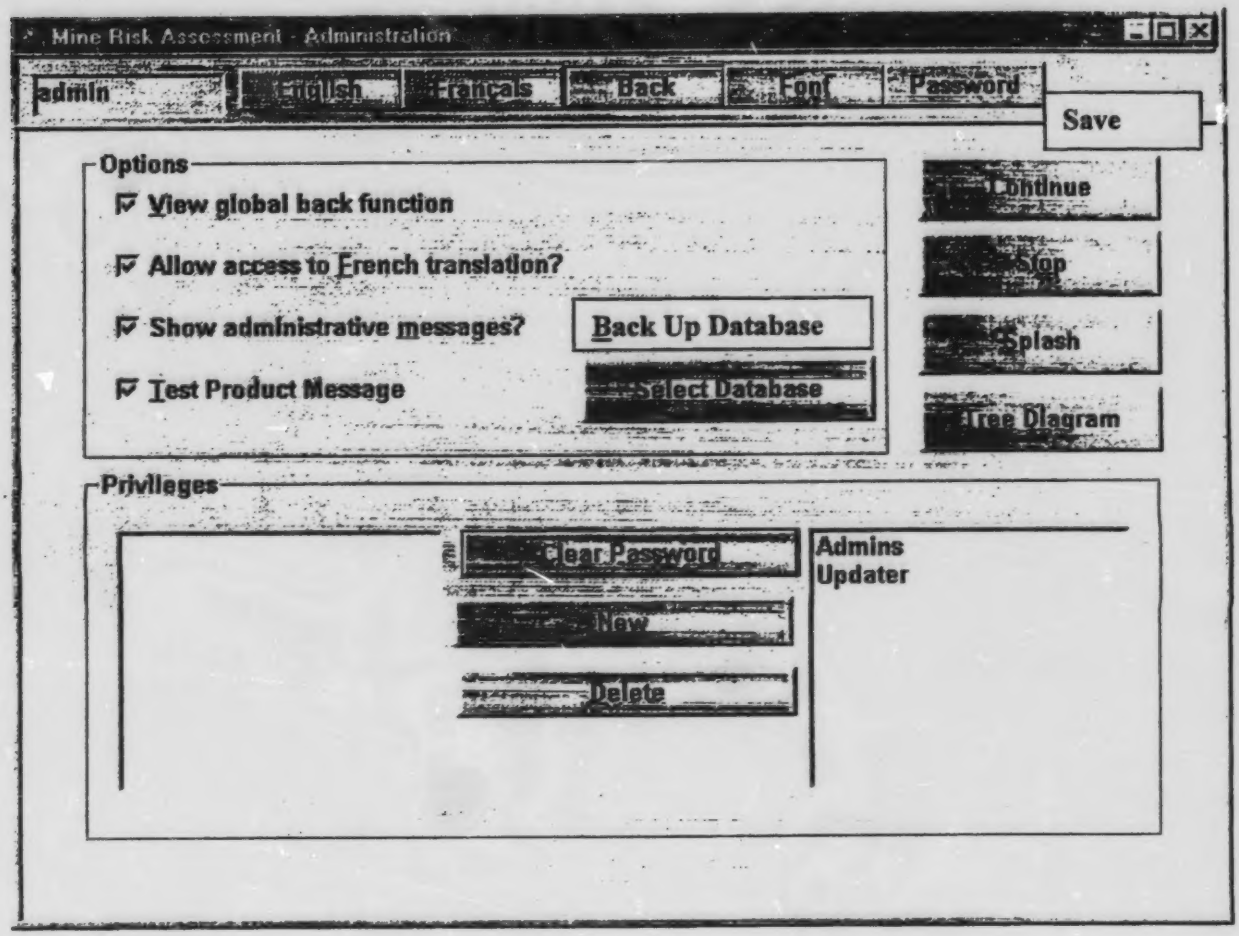

Figure A16: Administration

Tree Diagram Screen

The Tree Diagram feature should be available in the 32 bit Windows operating system version of the software and if technically possible, also in the 16 bit Windows operating system. By clicking consecutively on nodes, the user may review the questions, answers, risks, and exclusions comprising the current knowledge base. The tree diagram information should be continuously updated as changes are made via the Database Update screens. In addition to reviewing the current structure of the knowledge base, the user should be able to choose Continue (to return to the Administration screen) or Stop (to exit the application).

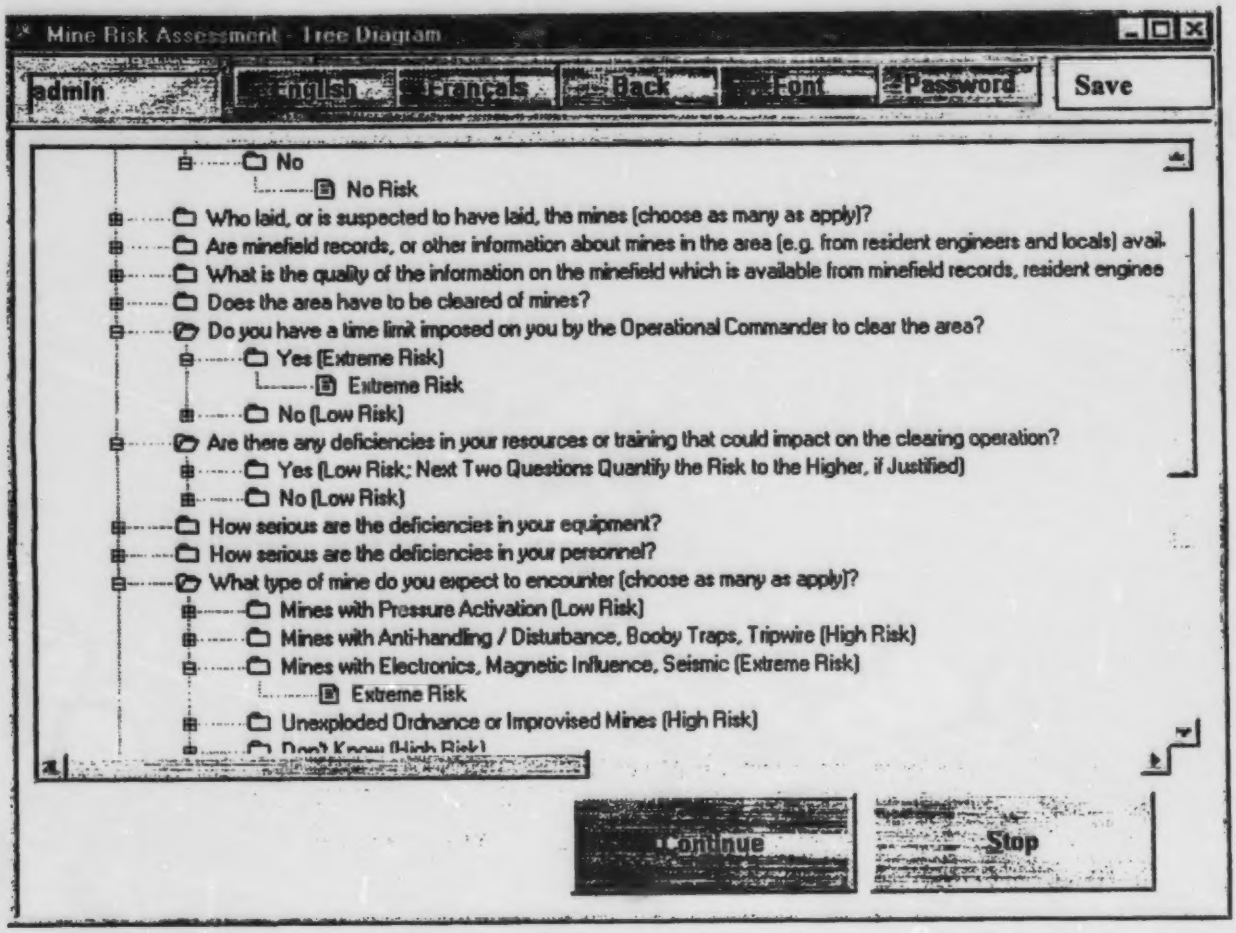
Mine Risk Assessment - Tree Diagram
admin
English
Francais
Back
Cont
Password
Save
No
No Risk
Who laid, or is suspected to have laid, the mines (choose as many as apply)?
Are minefield records, or other information about mines in the area (e.g. from resident engineers and locals) avail-
What is the quality of the information on the minefield which is available from minefield records, resident enginee
Does the area have to be cleared of mines?
Do you have a time limit imposed on you by the Operational Commander to clear the area?
Yes (Extreme Risk)
Extreme Risk
No (Low Risk)
Are there any deficiencies in your resources or training that could impact on the clearing operation?
Yes (Low Risk; Next Two Questions Quantify the Risk to the Higher, if Justified)
No (Low Risk)
How serious are the deficiencies in your equipment?
How serious are the deficiencies in your personnel?
What type of mine do you expect to encounter (choose as many as apply)?
Mines with Pressure Activation (Low Risk)
Mines with Anti-handling / Disturbance, Booby Traps, Tripwire (High Risk)
Mines with Electronics, Magnetic Influence, Seismic (Extreme Risk)
Extreme Risk
Unexploded Ordnance or Improvised Mines (High Risk)
Continue
Stop

Figure A17: Tree Diagram

Copyright Contents Screen

On the Copyright Contents screen, the user with Administration privileges should be able to enter information that appears on the splash screen. The version number for the software (both English and French) should be disabled and should be able to be changed by making changes directly to the database through the software used for database development. This version number refers to the version of the software source code used for the application.

Choosing Continue should return the user to the Administration screen. Choosing Stop should allow the user to exit the software.

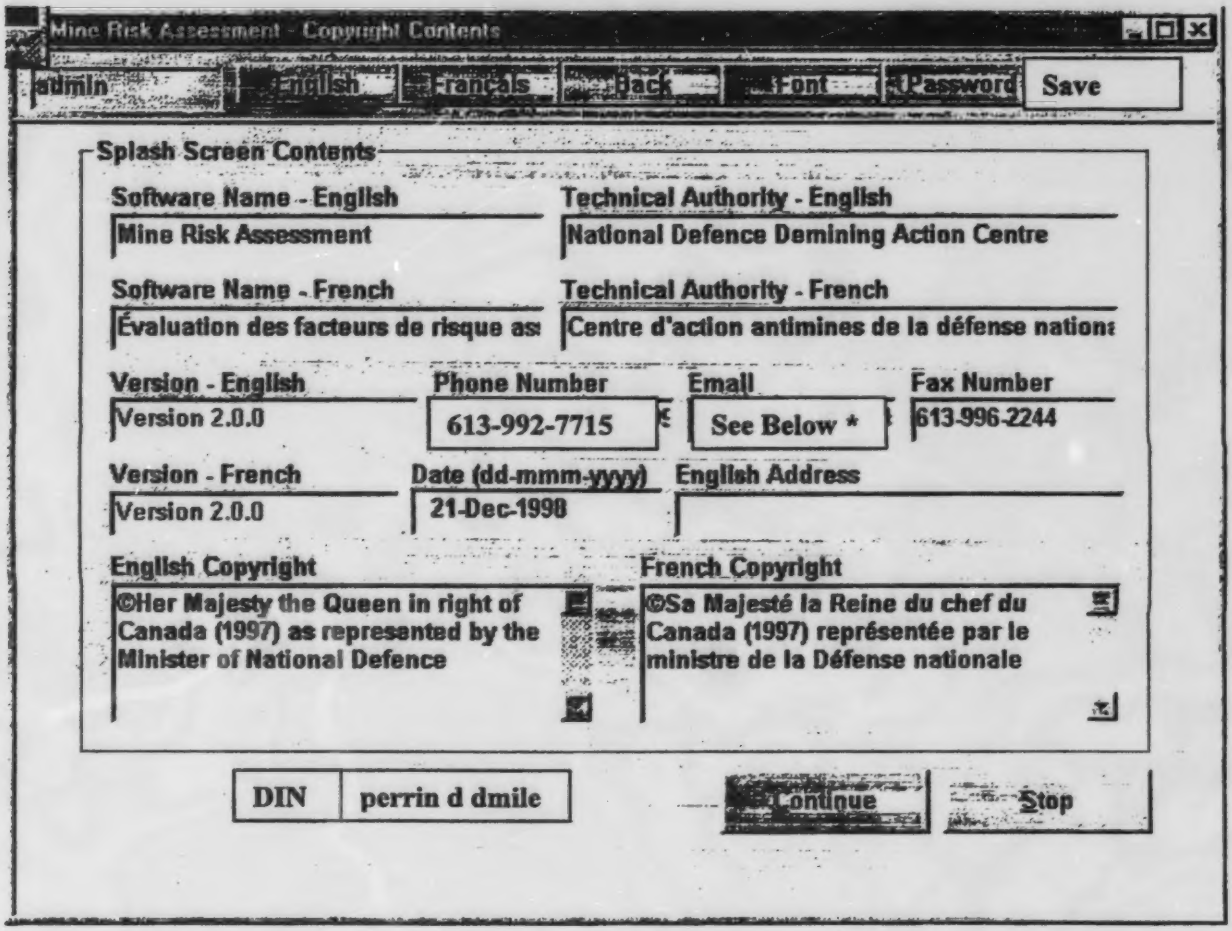

Figure A18: Copyright Contents

* ad643@issc.debbs.ndhq.dnd.ca

Database Update Screens

The set of database update screens should allow users with database and administrator privileges to change components of the knowledge base used to produce the mine risk assessment. These screens should allow the application to be modified so that it stays current as mine technology advances and new knowledge about mine clearance operations is gained.

Database Properties Screen

In the Options box, the user should be able to choose:

a. to show or hide database messages (the choice depending on the experience level of the personnel performing database updates),

b. Database (to choose the database version to be used by the MRA software during runs).

In the Modification Log, the user should be able to enter information about modifications to be made or review the history of earlier modifications. The items which may be recorded or reviewed for earlier modifications (if any exist) include:

a. Name of Modifier,

b. Date (in dd-mmm-yyyyy format with error checking buiit into it; all dates, in fact the entire Version 3 software, should be year 2000 compliant),

c. Description of Modification (this description can be several paragraphs long and may be of unlimited length; the scroll bars should be automatically activated when needed),

d. Comments (the comments may be of unlimited length, consisting of several paragraphs, with the scroll bars automatically being activated when needed).

While adding, removing, or reviewing items in the Modification Log section the user may choose:

a. Previous (to view previous log entries),

b. Next (to view next log entries),

c. Add (to add a log entry),

d. Delete (to delete a log entry).

The user should also be able to choose Continue (to return to the Start Up screen), Stop (to exit the software), Questions (to proceed to the Question Details screen), Answers (to proceed to the Answers to Questions screen), Exclusions (to proceed to the Inference Settings screen), General Help (to proceed to the General Help screen), Warnings (to proceed to the Warning Information screen), Risks (to proceed to the Risk Levels screen), Order (to proceed to the Order screen), Missing Data (to view the screen showing essential data that is missing and must be entered before the database can be considered complete enough to run an assessment with; Version 2 has a sample of this screen and Version 3 should either include this screen as is, or include a modified version with increased functionality; the screen should specifically show what is missing and where, in order to make it very simple for users to know what steps to take to complete the database). If the user attempts to exit the software with an incomplete database, the user should be warned of this prior to exit and provided an opportunity to view the Missing Data screen.

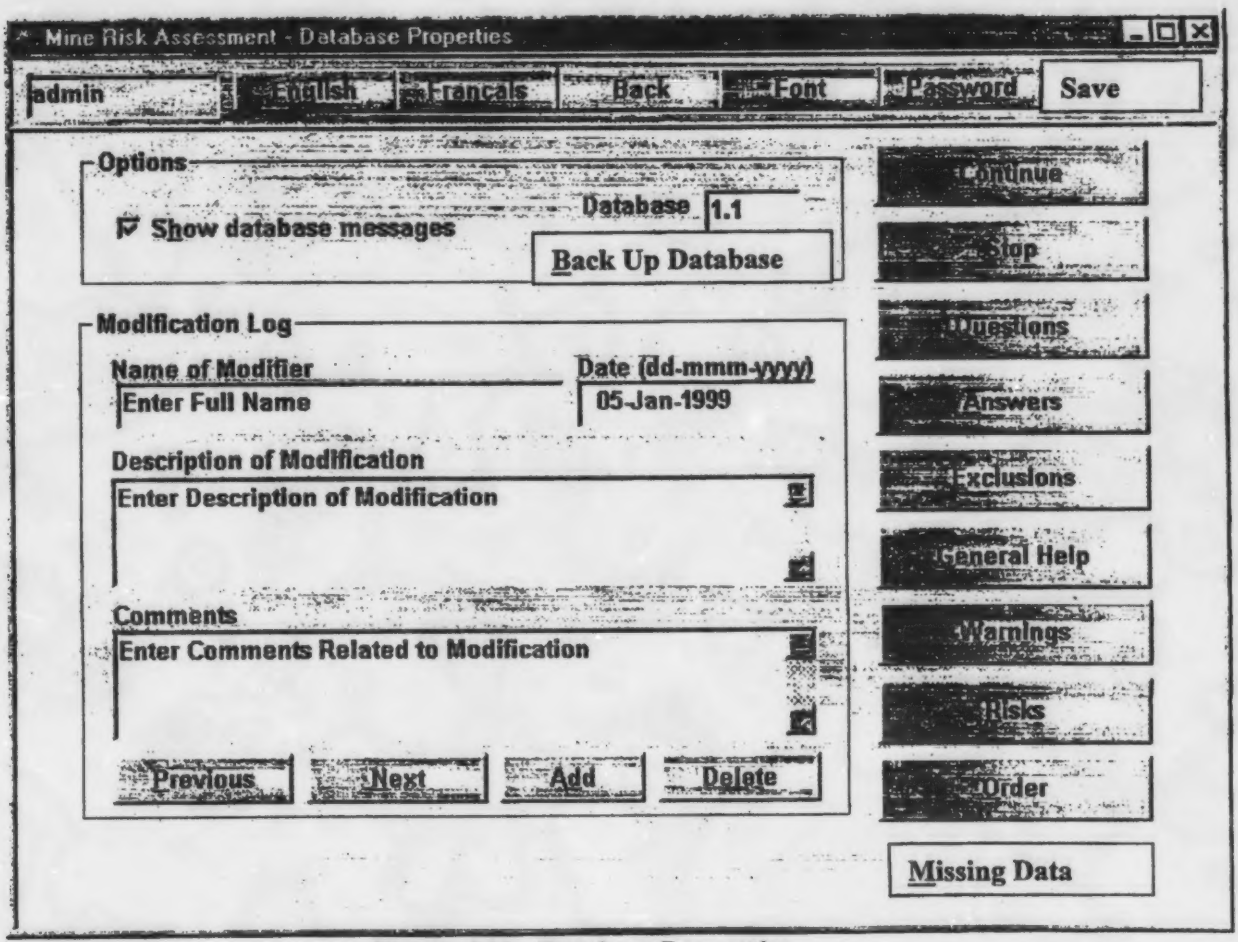

Figure A19: Database Properties

Question Details Screen

Choosing Questions on the Database Properties screen should invoke the Question Details screen. On this screen, the user should be able to choose to:

a. delete an existing question by clicking on the ID of the question to be deleted using the scroll bar in the Select or Add Question section, and then selecting Delete (a prompt appears telling the user the ID of the question to be deleted and asking for user verification that the user really does want to delete that question, allowing the delete to be cancelled or carried out after user confirmation),

b. modify select aspects of an existing question, the question itself, the help file associated with it, whether the question supports multiple answers, and whether it has "No Answer" assigned to it as a valid response,

c. add a new question to the database by typing in the unique question ID and selecting Add in the Select or Add Question box, and if desired, complete information concerning the question text in both English and French, the help text associated with the question in both English and French, whether the question supports multiple answers, and whether it has "No Answer" assigned to it as a valid response.

Once a new question ID is added, the user has the choice of entering all, none, or some of the corresponding information held in the Edit Question box. If the user does not enter all the required information, then the software keeps tab of what information is missing. It notifies the user, through the Missing Data screen, of the exact information that is yet to be entered to allow the application to run assessments utilizing the new database changes. If a user tries to run an assessment with a database that has mandatory information missing from it, then the application will not allow the assessment to be run. Rather, it will inform users that the database is incomplete and ask the user to contact technical support. It should be possible to run the software in English mode only if the English version of the database is complete but the French is not (perhaps because it is pending translation). In this case, the French mode should not be available for an assessment run until the French database is completed.

In order for a question to be complete, in both English and French, the following must be completed within the database:

a. the question ID,

b. the question text (in English and French),

c. the answers (in English and French) associated with the question,

d. the explanations (in English and French) associated with each answer,

e. the warning (if any) associated with each answer,

f. the risk level associated with each answer,

g. the exclusions (if any) associated with each answer,

h. the question help text (in English and French),

i. whether the question supports multiple answers,

j. whether the question has a "No Answer" response associated with it.

The user may also choose Continue (to return to the Database Properties screen), and Stop (to exit the software).

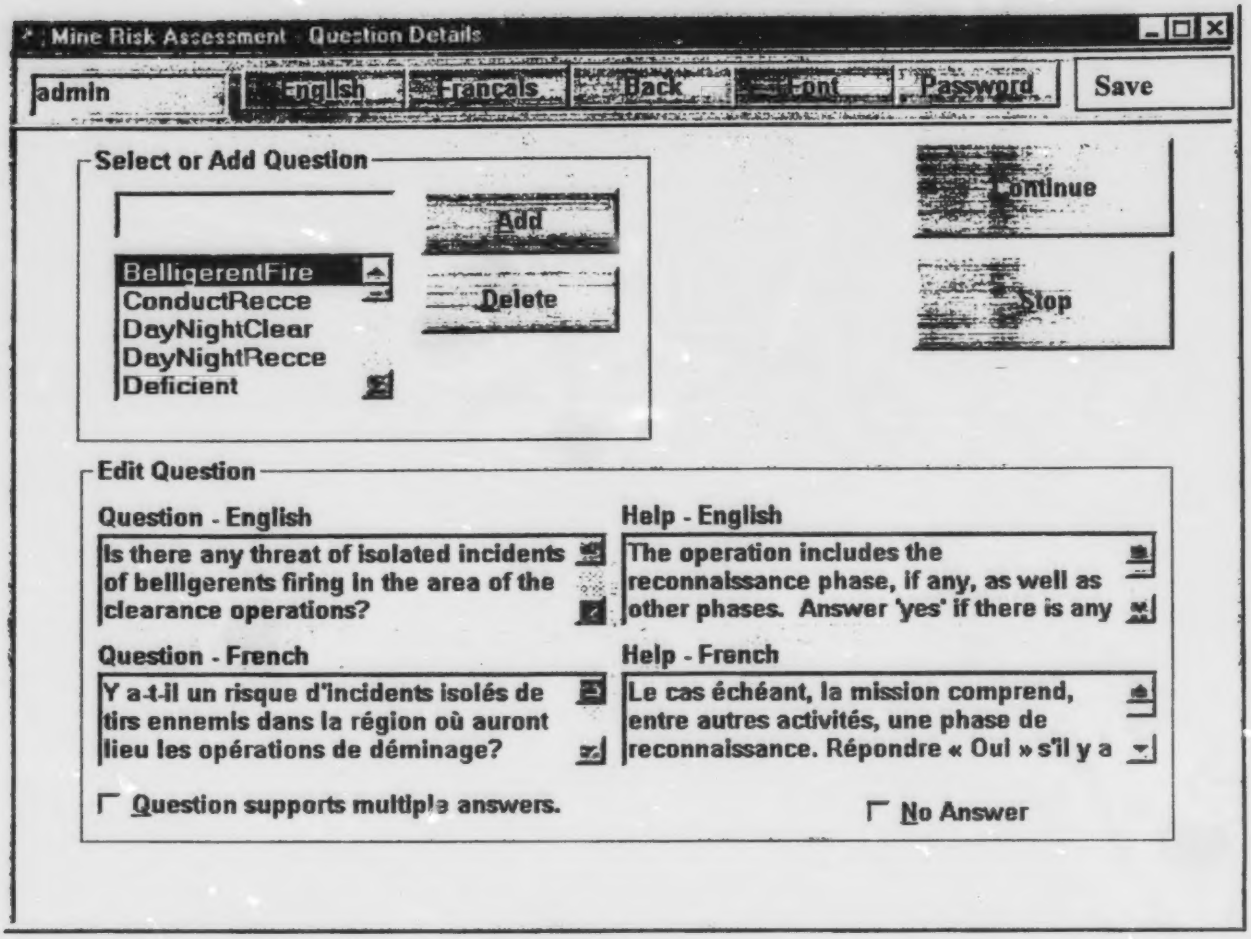
Mine Risk Assessment - Question Details
admin
English
Francais
Back
Cont
Password
Save
Select or Add Question
Add
BelligerentFire
ConductRecce
DayNightClear
DayNightRecce
Deficient
Delete
Continue
Stop
Edit Question
Question - English
Is there any threat of isolated incidents of belligerents firing in the area of the clearance operations?
Help - English
The operation includes the reconnaissance phase, if any, as well as other phases. Answer 'yes' if there is any
Question - French
Y a-t-il un risque d'incidents isolés de tirs ennemis dans la région où auront lieu les opérations de déminage?
Help - French
Le cas échéant, la mission comprend, entre autres activités, une phase de reconnaissance. Répondre « Oui » s'il y a
Question supports multiple answers.
No Answer

Figure A20: Question Details

Answers to Questions Screen

Choosing Answers from the Database Properties screen should invoke the Answers to Questions screen. On this screen, the user should be able to choose the question ID from the scroll box in the Questions section of the screen. This ID should be selected from an alphabetical list created on the Question Details screen.

For the selected ID, the user should be able to:

a. modify existing answers (if any),

b. delete existing answers (if any),

c. add new answers (both English and French) to be assigned to that question.

For each answer, the user should be able to provide / modify the corresponding explanation (both English and French), warning (if any) and risk level. It is not mandatory to enter this information, but if it is not entered then the database is to be considered incomplete. Assessments should not be run using the incomplete database in which critical information (e.g. numeric risk levels associated with a risk name) is missing.

The user should be able to employ Previous and Next to toggle between records. The Update, Add and Delete are used in adding, modifying, and deleting answers to the question under consideration. The user should also be able to choose Continue to return to the Database Properties screen, and Stop to exit the application.

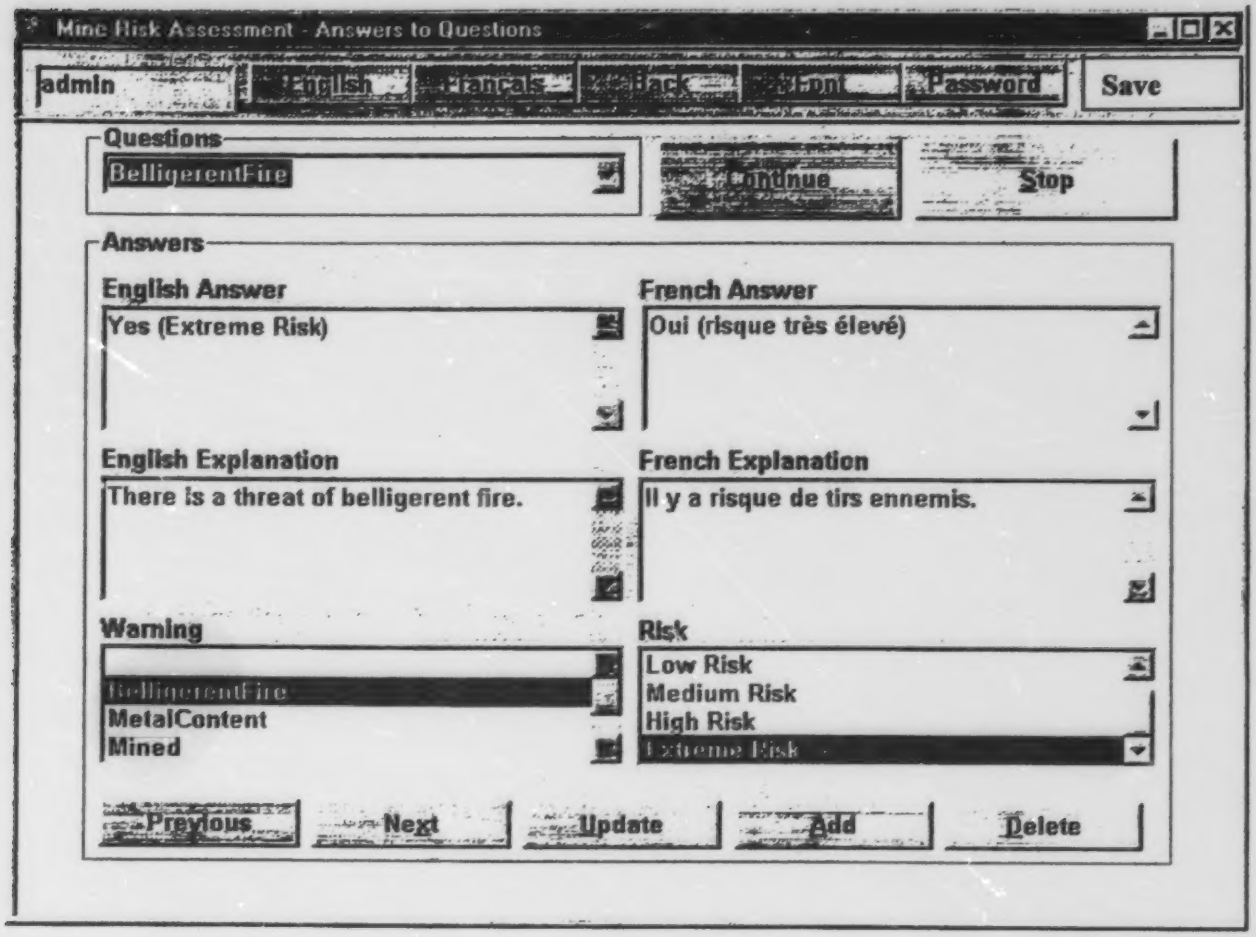

Figure A21: Answers to Questions

Inference Settings Screen

The Inference Settings screen should allow users to exclude certain follow-on questions from being asked if, during an assessment run, the user responds to a select earlier question with a select response. For example, exclusions should be used to ensure that follow-on questions concerning how the reconnaissance is to be completed and concerning weather conditions during the reconnaissance should not be asked if the user replies that no reconnaissance will be conducted.

To set exclusions, the user first should select the ID of the question for which the exclusions are to be set. This should be done from the alphabetical ID listing in the Select Question box. Once the ID is selected, the complete question text should appear to its right and the allowed answers for that ID should appear below (with scroll bars activated as needed). The user should be able to select the answer for which the exclusion applies and then set the questions to exclude for that answer using the arrow pointing to the right. The user should also be able to cancel existing exclusions by using the arrow pointing to the left. Exclusions should not be able to be set for questions which are asked prior to the one for which the exclusions are being set. Reordering the order in which the questions are asked should result in automatic refinement of the exclusions so that only the ones that are logical to retain remain, and should result in a message telling the user that this was done. The list of questions to be excluded is a list of unique question IDs, and a question ID can appear on only one of the two lists at one time.

The user should also be able to choose Tree Diagram (to navigate to the Tree Diagram screen), Continue (to return to the Database Properties screen), or Stop (to exit the software).

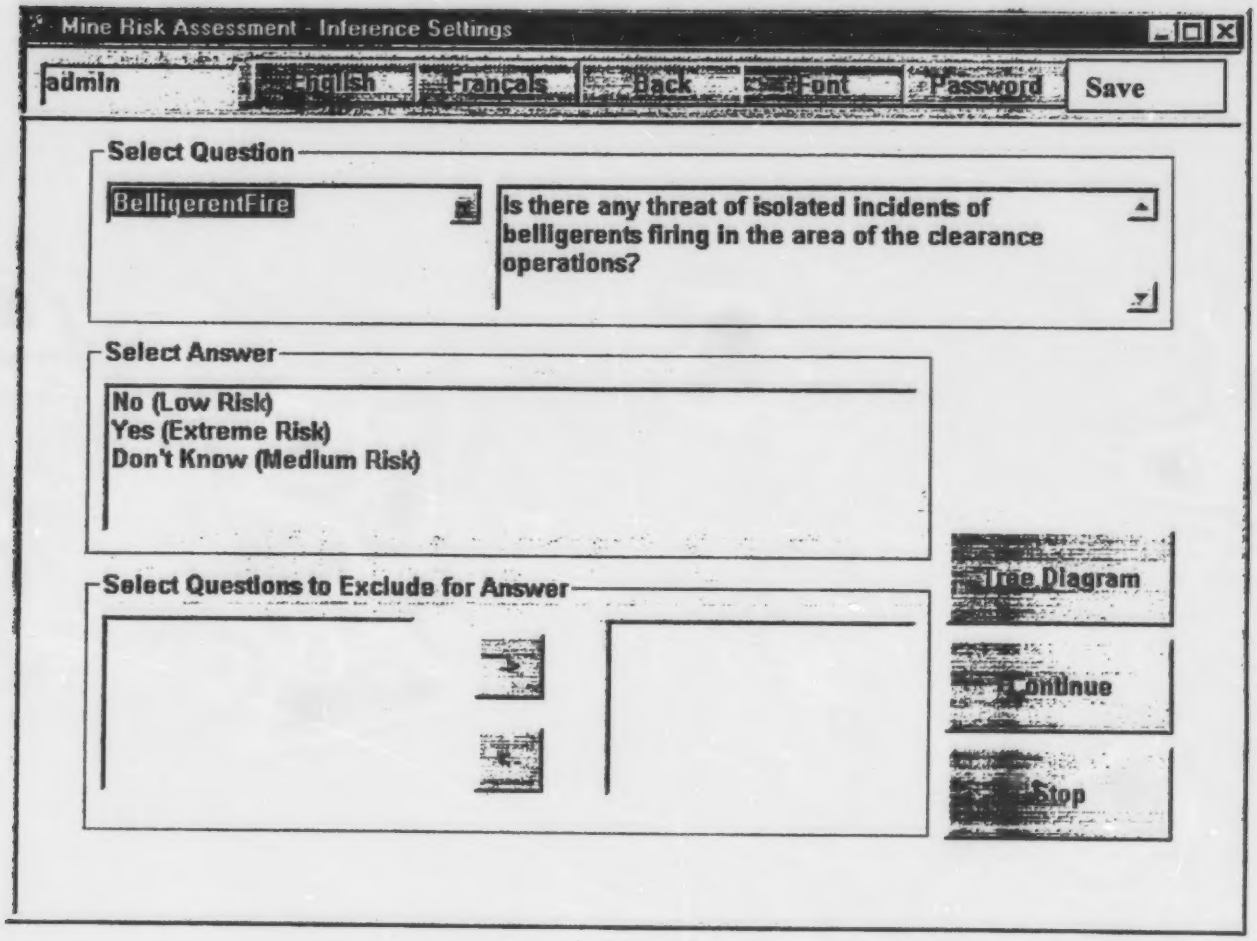

Figure A22: Inference Settings

Warning Information Screen

On the Warning Information screen, the user should be able to add, delete or modify a warning and to assign whether or not the warning stops program execution.

To delete a warning, the user should choose the Warning ID from the alphabetical ID listing and the ID should appear in the Warning ID text box along with the details for that warning in both English and French. The user then should select Delete, and a confirmation message should appear asking whether the delete should really take place. Replying yes to the confirmation message should delete the warning. Replying no should result in the cancellation of the delete command.

To modify an existing warning, the user should choose the Warning ID from the alphabetical ID listing and the ID should appear in the Warning ID text box along with the details for that warning in both English and French. The user should then modify the text as needed, using scroll bars if required. The warning should be as long as the user wishes, with as many paragraphs as desired.

To add a new warning, the user should type in a new Warning ID. If the ID is not unique, an explicit error message should be issued and the ID should not be accepted. If the ID is unique, the user should then be able to type in the warning details.

The user should also be able to select Continue (to return to the Database Properties screen) and Stop (to exit the software).

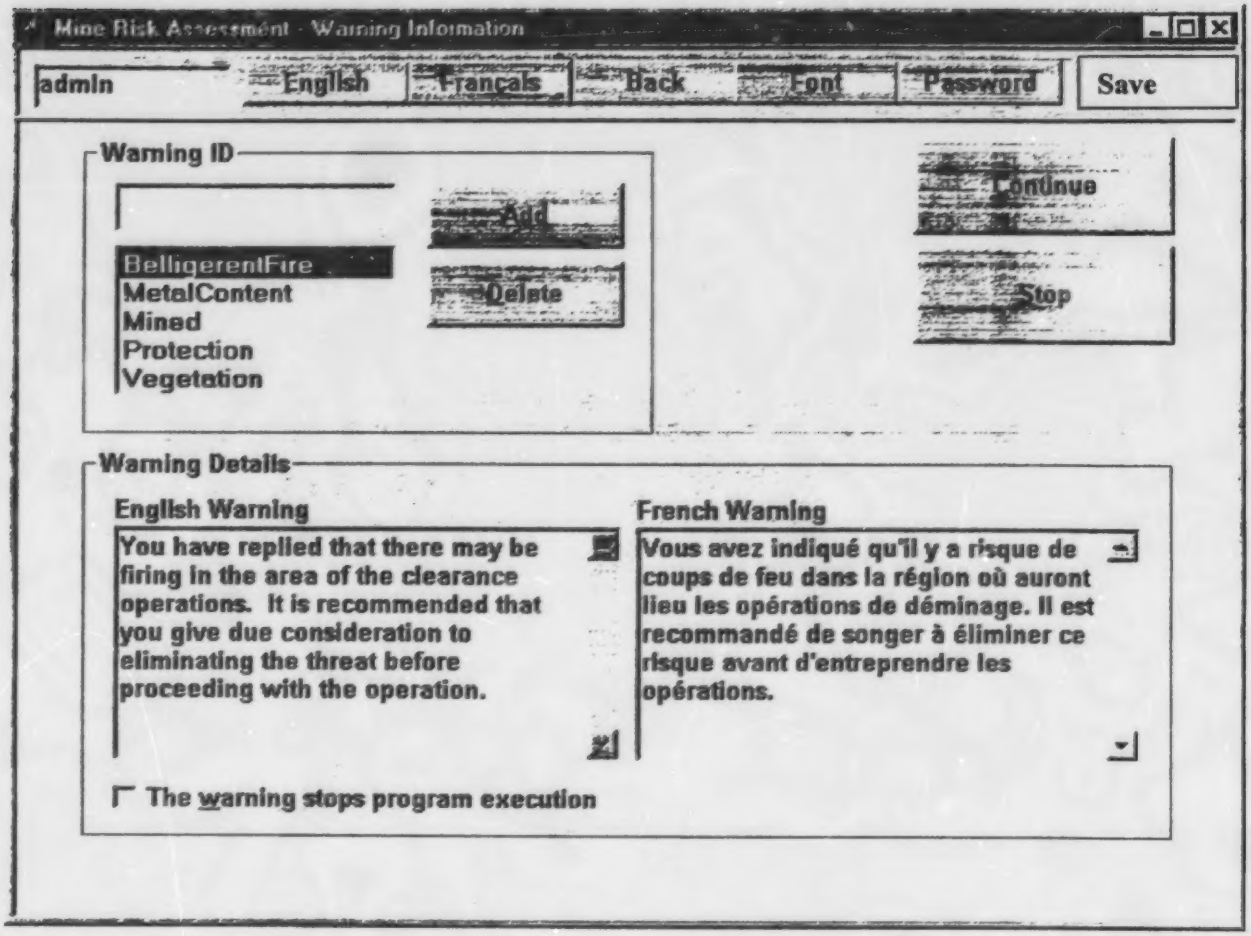
Mine Risk Assessment - Warning Information
admin
English
Français
Back
Font
Password
Save
Warning ID
Add
Delete
BelligerentFire
MetalContent
Mined
Protection
Vegetation
Continue
Stop
Warning Details
English Warning
You have replied that there may be firing in the area of the clearance operations. It is recommended that you give due consideration to eliminating the threat before proceeding with the operation.
French Warning
Vous avez indiqué qu'il y a risque de coups de feu dans la région où auront lieu les opérations de déminage. Il est recommandé de songer à éliminer ce risque avant d'entreprendre les opérations.
The warning stops program execution

Figure A23: Warning Information

Order Screen

On this screen, the user should be able to change the order in which questions are asked of the user, the order in which answers for a question are listed on the screen, and the order in which help topics are listed on the Read and Print Documentation screen. The user should be able to view the questions, answers to each question, and help topics in lists showing the order in which they are currently set to appear. The user should be able to use the Up and Down commands to change this order to whichever order the user wishes to have. The software should automatically generate vertical scroll bars whenever they are needed to view the lists.

The user should also be able to choose Continue (to return to the Database Properties screen) and Stop (to exit the software).

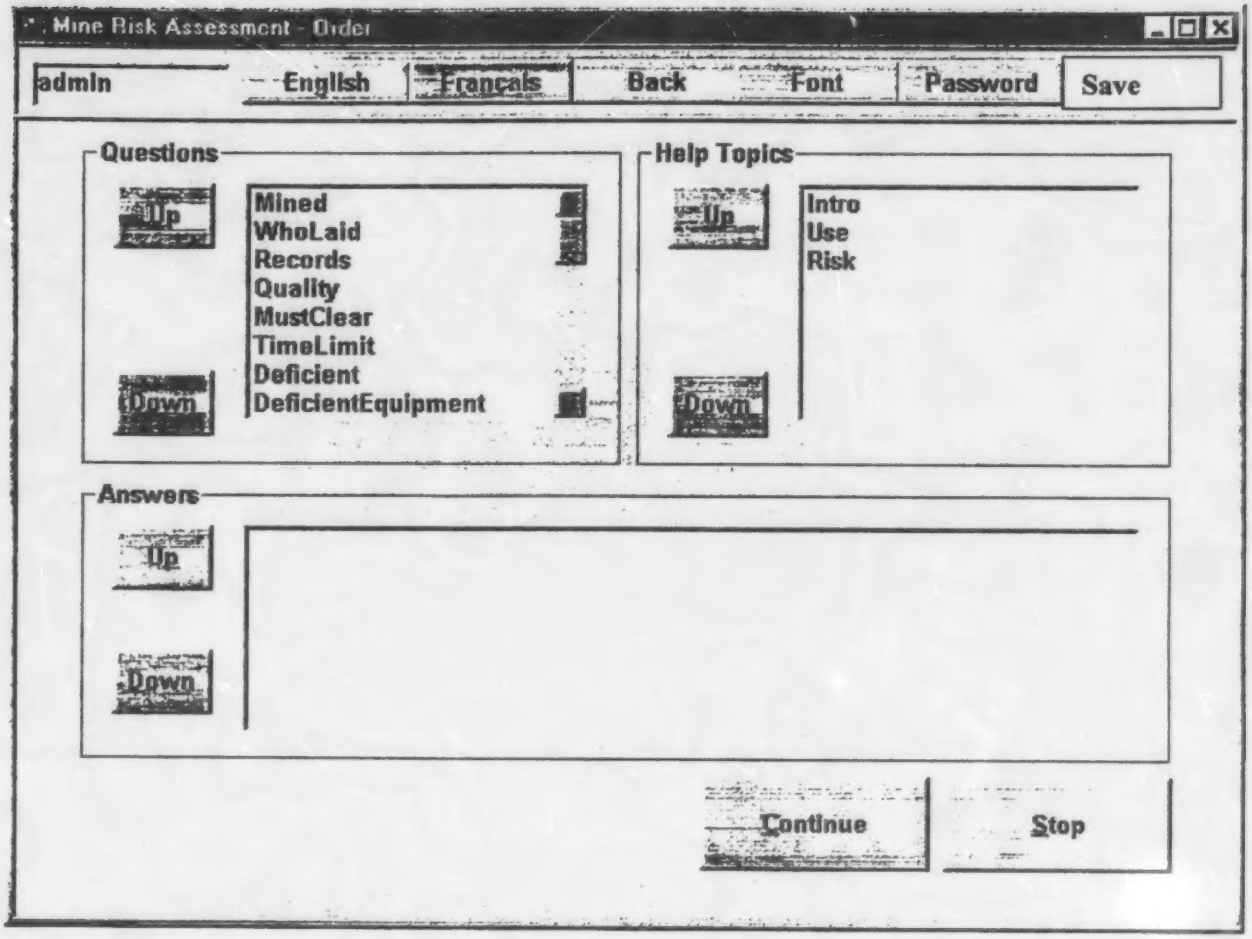

Figure A24: Order

Risk Levels Screen

On the Risk Levels screen, the user should be able to add, modify or delete risk levels. In addition to the No Risk level (which is treated uniquely by the software in the generation of reports), there can be as many risk levels defined as the user wishes. The software should ensure that risk IDs, names, and degrees are unique. Mine risk assessments should not be run if a risk degree is incomplete in the database. The use of default values in the software should be carefully considered so that their use cannot inadvertently lead to novice users running mine risk assessments with databases that are incorrect due to values having been assigned defaults that are incorrect.

For each Risk ID, the user should be able to add or modify the risk description in both English and French, the risk name in both English and French, the integer degree value associated with that risk, and the color associated with the risk.

The user should also be able to choose Continue (to return to the Database Properties screen), and Stop (to exit the application).

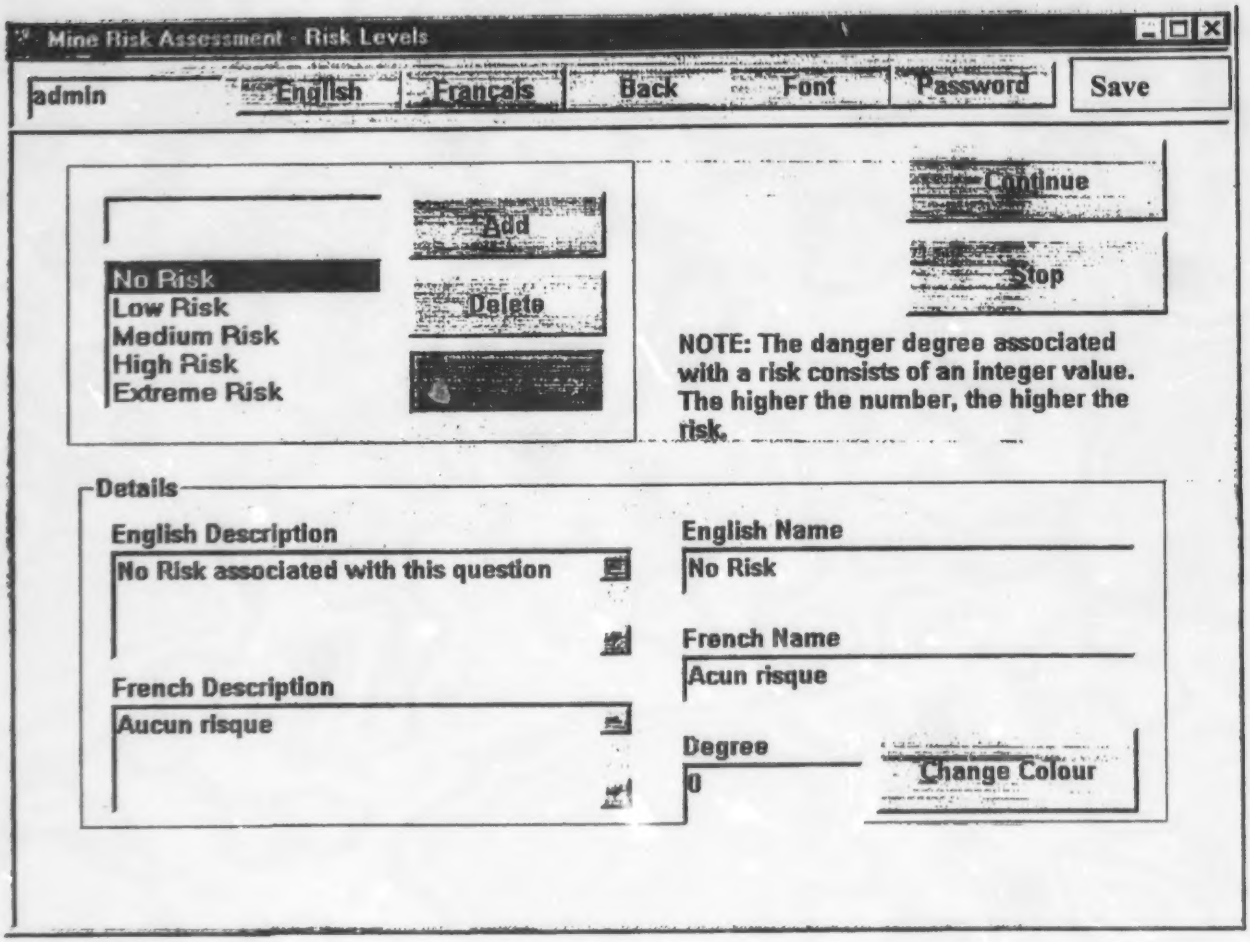

Figure A25: Risk Levels

General Help Screen

On the General Help screen the user should be able to add, modify or delete a Help Topic and the paragraphs and details for that topic. The software should ensure that Help Topic IDs and names are unique. The user should be able to view, modify, and add to the help topic paragraphs, inserting new information and paragraphs wherever needed.

The user should also be able to choose Continue (to return to the Database Properties screen) and Stop (to exit the software).

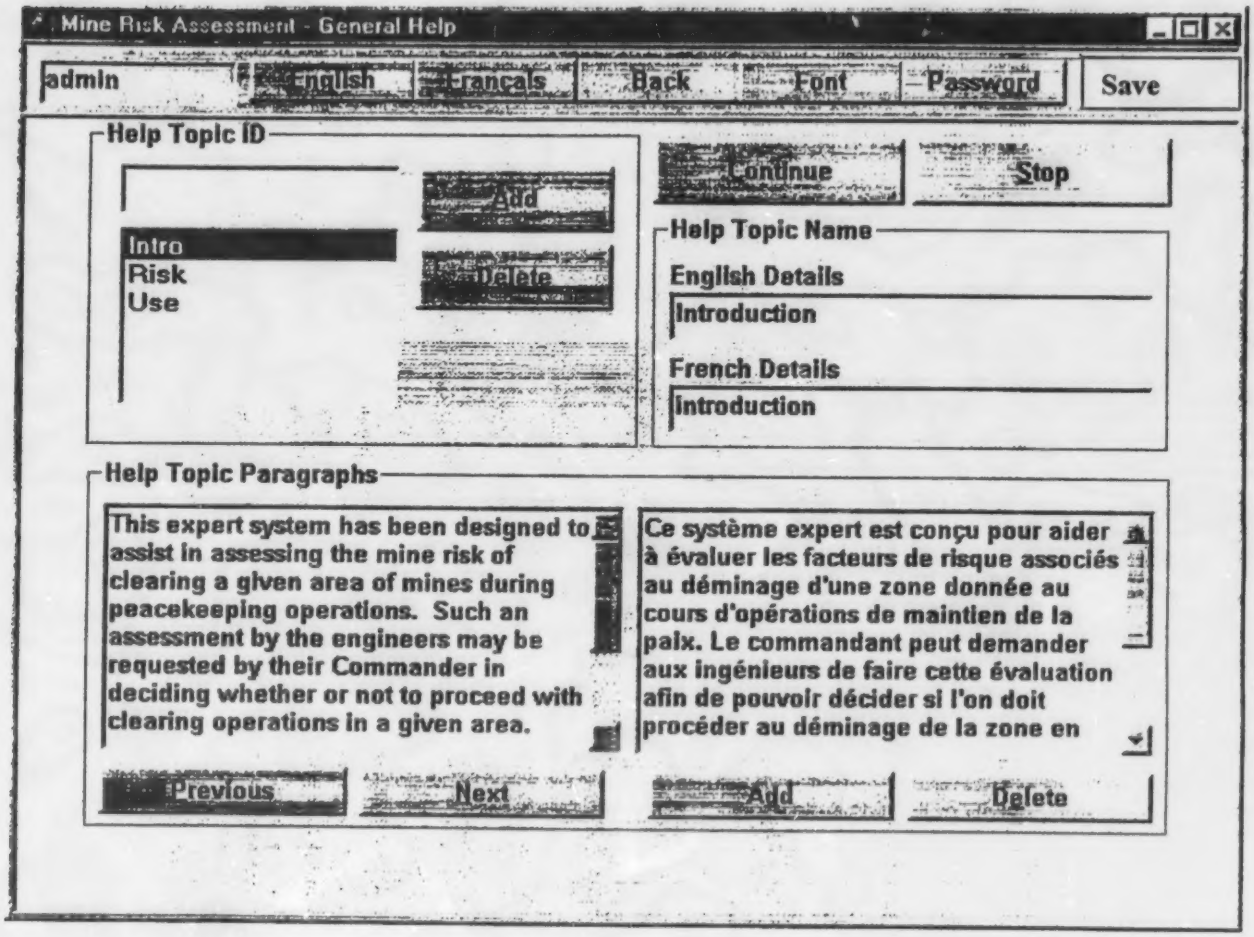
Mine Risk Assessment - General Help
admin
English
Francais
Back
Font
Password
Save
Help Topic ID
Add
Intro
Risk
Use
Delete
Continue
Stop
Help Topic Name
English Details
Introduction
French Details
Introduction
Help Topic Paragraphs
This expert system has been designed to assist in assessing the mine risk of clearing a given area of mines during peacekeeping operations. Such an assessment by the engineers may be requested by their Commander in deciding whether or not to proceed with clearing operations in a given area.
Ce système expert est conçu pour aider à évaluer les facteurs de risque associés au déminage d'une zone donnée au cours d'opérations de maintien de la paix. Le commandant peut demander aux ingénieurs de faire cette évaluation afin de pouvoir décider si l'on doit procéder au déminage de la zone en
Previous
Next
Add
Delete

Figure A26: General Help

ANNEX B
ORD PROJECT REPORT PR9908
JUNE 1999

EXAMPLES OF MRA REPORT FORMATS

The following are examples of the formats of the reports to be produced by the MRA software. The content of the reports should vary depending on the content of the database used to generate the reports and on the user's responses to the questions asked via the MRA input dialog screens. Note that these reports reflect an early version of the database. Also note that although there were some questions for which the answers were all of the "No Risk" Category, the "No Risk" responses do not appear under a separate category in the "Assessed Mine Risk and Explanation" report. The "No Risk" responses are the only risk category of answers that do not appear in the "Assessed Mine Risk and Explanation" report. Note also that each report has a header documenting the case identifier, the user who last saved the case information, and the date and time of that last save.

Each report starts on a new page. The report pages are numbered. The reports are formatted so that they are easy to read, and page breaks occur at advantageous places (e.g. a question and its answer set do not appear on different pages). If a user is entering long comments, the software automatically activates scroll bars as needed to facilitate information entry.

Identifier: 00001
Last Saved By: Admin
Date & Time of Last Save: 11-Jan-1999, 13:04

THE QUESTIONS AND YOUR ANSWERS

1. Mined

Is the area under consideration known to be, or suspected to be, mined?

Yes

2. WhoLaid

Who laid, or is suspected to have laid, the mines (choose as many as apply)?

Canadian Troops
ABCA or NATO Troops
Other Friendly Forces
Warring Factions

3. Records

Are minefield records, or other information about mines in the area (e.g. from resident engineers and locals) available for the area to be cleared?
Note that this question addresses only record and information availability. Subsequent questions will address the quality of records and other information.

Yes

4. Quality

What is the quality of the information on the minefield which is available from minefield records, resident engineers, locals, and other sources?

Highly Accurate

5. MustClear

Does the area have to be cleared of mines?

Yes (there is no other choice)

6. TimeLimit

Do you have a time limit imposed on you by the Operational Commander to clear the area?

Yes

7. Deficient

Are there any deficiencies in your resources or training that could impact on the clearing operation?

Yes

8. DeficientEquipment

How serious are the deficiencies in your equipment?

Major Deficiencies

9. DeficientPersonnel

How serious are the deficiencies in your personnel?

Major Deficiencies

10. MineType

What type of mine do you expect to encounter (choose as many as apply)?

Pressure Activation
Anti-handling, disturbance, booby traps, tripwire
Electronics, Magnetic Influence, Seismic
Unexploded Ordnance or Improvised Mines

11. Location

Where are the mines located?

On the surface

12. HowPlaced 3/5

How were the mines placed (choose as many as apply)?

By Hand
Mechanical
Scattered

13. Pattern

Is there a known pattern to the minefield? (Note that a known pattern does not negate the possibility of deviation from that pattern.)

No

14. ConductRecce

Do you intend to perform a reconnaissance?

No

15. HowRecce

How do you intend to conduct the physical reconnaissance (choose as many as apply)(this question only applies if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

16. MarkedMine

Is the minefield marked (this question applies only if you will recce; otherwise, No Answer is appropriate)? (Note that the quality of the markings and/or the condition of the fencing might not give a true picture of the quality or condition of the minefield itself.)

No Answer
(** This question was not applicable)

17. WeatherRecce

During reconnaissance operations, will weather, temperature, and seasonal effects be contributing risk factors (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

18. DayNightRecce

Will reconnaissance operations be conducted during daylight or in artificial light conditions (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

19. SizeClear

What is the size of the area to be actually cleared?

Small(Less than 50 square metres)

20. Soil

What ground and soil conditions will be encountered during clearing operations (choose as many as apply)?

Solid Surface (metal;wood;asphalt;concrete;hard packed gravel)

21. MetalContent

What is the metallic content of the soil / area to be cleared?

Content is such that metal detectors are registering an unreasonable rate of nonmine detections

22. Vegetation

Consider if vegetation conditions necessitate burning / cutting to clear the area. Please indicate type of vegetation to be cleared:

Dense (Must cut/burn; Can't see ground-e.g. includes high grass, bushes, trees)

23. WeatherClear

During clearing operations, will weather, temperature, and seasonal effects be contributing risk factors? (Please refer to 'help' for discussion.)

Yes (Major contribution)

24. DayNightClear

Will clearing operations be conducted during daylight or in artificial light conditions?

Artificial

25. WhoClears

Who will be performing mine clearance?

Qualified Canadians

26. MethodClear

Which method(s) will you use if you proceed with clearing operations? (Please refer to 'help' for discussion.)

Primarily Explosive and Mechanical

27. Protection

During clearing operations, what will personnel of the mine clearance team be wearing (choose as many as apply; note that team members may or may not all be wearing the same type of protection)?

Mine Clearance Suit(MSC-4)
Body Armour
Fragmentation Jacket
Regular Uniform without any of the above

28. BelligerentFire

Is there any threat of isolated incidents of belligerents firing in the area of the clearance operations?

Yes

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QUESTIONS, ANSWERS, AND ASSOCIATED RISKS

1. Mined

Is the area under consideration known to be, or suspected to be, mined?

Yes
(No Risk associated with this question)

2. WhoLaid

Who laid, or is suspected to have laid, the mines (choose as many as apply)?

ABCA or NATO Troops
Other Friendly Forces
Warring Factions
Canadian Troops

(No Risk associated with this question)

3. Records

Are minefield records, or other information about mines in the area (e.g. from resident engineers and locals) available for the area to be cleared?
Note that this question addresses only record and information availability. Subsequent questions will address the quality of records and other information.

Yes
(No Risk associated with this question)

4. Quality

What is the quality of the information on the minefield which is available from minefield records, resident engineers, locals, and other sources?

Highly Accurate
(Low Risk)

5. MustClear

Does the area have to be cleared of mines?

Yes (there is no other choice)
(No Risk associated with this question)

6. TimeLimit

Do you have a time limit imposed on you by the Operational Commander to clear the area?

Yes
(Extreme Risk)

7. Deficient

Are there any deficiencies in your resources or training that could impact on the clearing operation?

Yes
(Low Risk)

8. DeficientEquipment

How serious are the deficiencies in your equipment?

Major Deficiencies
(High Risk)

9. DeficientPersonnel

How serious are the deficiencies in your personnel?

Major Deficiencies
(High Risk)

10. MineType

What type of mine do you expect to encounter (choose as many as apply)?

Pressure Activation
Anti-handling, disturbance, booby traps, tripwire
Electronics, Magnetic Influence, Seismic
Unexploded Ordnance or Improvised Mines
(Extreme Risk)

11. Location

Where are the mines located?

On the surface
(Low Risk)

12. HowPlaced

How were the mines placed (choose as many as apply)?

By Hand
Mechanical
Scattered
(High Risk)

13. Pattern

Is there a known pattern to the minefield? (Note that a known pattern does not negate the possibility of deviation from that pattern.)

No
(High Risk)

14. ConductRecce

Do you intend to perform a reconnaissance?

No
(Extreme Risk)

15. HowRecce

How do you intend to conduct the physical reconnaissance (choose as many as apply)(this question only applies if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

16. MarkedMine

Is the minefield marked (this question applies only if you will recce; otherwise, No Answer is appropriate)? (Note that the quality of the markings and/or the condition of the fencing might not give a true picture of the quality or condition of the minefield itself.)

No Answer
(** This question was not applicable)

17. WeatherRecce

During reconnaissance operations, will weather, temperature, and seasonal effects be contributing risk factors (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

18. DayNightRecce

Will reconnaissance operations be conducted during daylight or in artificial light conditions (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

19. SizeClear

What is the size of the area to be actually cleared?

Small (Less than 50 square metres)
(Low Risk)

20. Soil

What ground and soil conditions will be encountered during clearing operations (choose as many as apply)?

Solid Surface (metal;wood;asphalt;concrete;hard packed gravel)
(Low Risk)

21. MetalContent

What is the metallic content of the soil / area to be cleared?

Content is such that metal detectors are registering an unreasonable rate of nonmine detections
(High Risk)

22. Vegetation

Consider if vegetation conditions necessitate burning / cutting to clear the area. Please indicate type of vegetation to be cleared:

Dense (Must cut/burn;Can't see ground-e.g. includes high grass,bushes,trees)
(Extreme Risk)

23. WeatherClear

During clearing operations, will weather, temperature, and seasonal effects be contributing risk factors? (Please refer to 'help' for discussion.)

Yes(Major contribution)
(Medium Risk)

24. DayNightClear

Will clearing operations be conducted during daylight or in artificial light conditions?

Artificial
(Medium Risk)

25. WhoClears

Who will be performing mine clearance?

Qualified Canadians
(Low Risk)

26. MethodClear

Which method(s) will you use if you proceed with clearing operations? (Please refer to 'help' for discussion.)

Primarily Explosive and Mechanical
(High Risk)

27. Protection

During clearing operations, what will personnel of the mine clearance team be wearing (choose as many as apply; note that team members may or may not all be wearing the same type of protection)?

Mine Clearance Suit(MSC-4)
Body Armour
Fragmentation Jacket
Regular Uniform without any of the above
(Extreme Risk)

28. BelligerentFire

Is there any threat of isolated incidents of belligerents firing in the area of the clearance operations?
Yes
(Extreme Risk)

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ASSESSED MINE RISK AND EXPLANATION

The assessed mine risk is: Extreme Risk

EXPLANATION

Factors Driving Extreme Risk:

A time limit has been imposed on you.
You expect to encounter mines with electronics, magnetic influence and / or seismic.
You will not conduct a reconnaissance.
The vegetation is dense (must cut/burn).
Regular Uniform without any of the protection means will be worn..
There is a threat of belligerent fire.

Factors Driving High Risk:

There are major deficiencies in you equipment.
There are major deficiencies in your personnel.
You expect to encounter mines with anti-handling / disturbance, booby traps and / or tripwire.
You expect to encounter unexploded ordnance and / or improvised mines.
The mines were scattered.
There is no known pattern to the minefield.
Metal detectors are registering an unreasonable rate on nonmine detections.
You will clear primarily using explosive and mechanical means.
Fragmentation Jacket will be worn.

Factors Driving Medium Risk:

During clearing, weather, temperature, seasonal effects will be major risk factors.
You will clear in artificial light.
Body Armour will be worn.

Factors Driving Low Risk:

Highly accurate information is available.
You expect to encounter mines with pressure activation.
The mines are located on the surface.
The mines were placed by hand.
The mines were placed mechanically.
The area to be cleared is small (less than 50 square meters)
You will be clearing a solid surface.
Qualified Canadians will conduct the clearing.
Mine Clearance Suit (MCS-4) will be worn.

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Date & Time of Last Save: 11-Jan-1999, 13:04

QUESTIONS, ANSWERS AND USER COMMENTS

1. Mined

Is the area under consideration known to be, or suspected to be, mined?

Yes

2. WhoLaid

Who laid, or is suspected to have laid, the mines (choose as many as apply)?

Canadian Troops
ABCA or NATO Troops
Other Friendly Forces
Warring Factions

This is the first paragraph of the comments for the Who Laid question and answer set. The paragraph is indented. The comments may be comprised of as many paragraphs as the user wishes and be as long as the user wishes. The comments may be edited within the MRA software. The user may wish to add no comments, comments to each question and answer set, or comments only to select question and answer sets.

This is the second and last paragraph of user comments for the Who Laid question and answer set.

3. Records

Are minefield records, or other information about mines in the area (e.g. from resident engineers and locals) available for the area to be cleared?
Note that this question addresses only record and information availability. Subsequent questions will address the quality of records and other information.

Yes

4. Quality

What is the quality of the information on the minefield which is available from minefield records, resident engineers, locals, and other sources?

Highly Accurate

5. MustClear

Does the area have to be cleared of mines?

Yes (there is no other choice)

6. TimeLimit

Do you have a time limit imposed on you by the Operational Commander to clear the area?

Yes

7. Deficient

Are there any deficiencies in your resources or training that could impact on the clearing operation?

Yes

8. DeficientEquipment

How serious are the deficiencies in your equipment?

Major Deficiencies

9. DeficientPersonnel

How serious are the deficiencies in your personnel?

Major Deficiencies

10. MineType

What type of mine do you expect to encounter (choose as many as apply)?

Pressure Activation
Anti-handling, disturbance, booby traps, tripwire
Electronics, Magnetic Influence, Seismic
Unexploded Ordnance or Improvised Mines

F2

11. Location 3/5

Where are the mines located?

On the surface

12. HowPlaced

How were the mines placed (choose as many as apply)?

By Hand
Mechanical
Scattered

13. Pattern

Is there a known pattern to the minefield? (Note that a known pattern does not negate the possibility of deviation from that pattern.)

No

14. ConductRecce

Do you intend to perform a reconnaissance?

No

15. HowRecce

How do you intend to conduct the physical reconnaissance (choose as many as apply)(this question only applies if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

16. MarkedMine

Is the minefield marked (this question applies only if you will recce; otherwise, No Answer is appropriate)? (Note that the quality of the markings and/or the condition of the fencing might not give a true picture of the quality or condition of the minefield itself.)

No Answer
(** This question was not applicable)

17. WeatherRecce

During reconnaissance operations, will weather, temperature, and seasonal effects be contributing risk factors (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

18. DayNightRecce

Will reconnaissance operations be conducted during daylight or in artificial light conditions (this question applies only if you will recce; otherwise, No Answer is appropriate)?

No Answer
(** This question was not applicable)

19. SizeClear

What is the size of the area to be actually cleared?

Small(Less than 50 square metres)

20. Soil

What ground and soil conditions will be encountered during clearing operations (choose as many as apply)?

Solid Surface(metal;wood;asphalt;concrete;hard packed gravel)

21. MetalContent

What is the metallic content of the soil / area to be cleared?

Content is such that metal detectors are registering an unreasonable rate of nonmine detections

22. Vegetation

Consider if vegetation conditions necessitate burning / cutting to clear the area. Please indicate type of vegetation to be cleared:

Dense(Must cut/burn; Can't see ground-e.g. includes high grass, bushes, trees)

23. WeatherClear 5/5

During clearing operations, will weather, temperature, and seasonal effects be contributing risk factors? (Please refer to 'help' for discussion.)

Yes(Major contribution)

24. DayNightClear

Will clearing operations be conducted during daylight or in artificial light conditions?

Artificial

25. WhoClears

Who will be performing mine clearance?

Qualified Canadians

26. MethodClear

Which method(s) will you use if you proceed with clearing operations? (Please refer to 'help' for discussion.)

Primarily Explosive and Mechanical

27. Protection

During clearing operations, what will personnel of the mine clearance team be wearing (choose as many as apply; note that team members may or may not all be wearing the same type of protection)?

Mine Clearance Suit(MSC-4)
Body Armour
Fragmentation Jacket
Regular Uniform without any of the above

28. BelligerentFire

Is there any threat of isolated incidents of belligerents firing in the area of the clearance operations?

Yes

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MINE RISK DEFINITIONS AND CAVEATS

Mine risk is determined by the expert system to be one of the following: low, medium, high, extreme. This scoring system was chosen because it is easy to understand, and unlike numeric scoring systems, cannot be abused through incorrect manipulations such as averaging scores, etc. The definitions of low, medium, high, and extreme are related to levels of repair as defined in A-LM-180-000/AG-000 and to the ability of personnel to resume work depending on the degree of injury suffered.

The expert system will provide you with an assessment of the mine risk as well as comments to assist you in understanding what the driving factors were to arrive at this assessment. Please note that mine risk refers only to the risk to personnel and equipment involved in clearing operations. It does not refer to the risk to the entire mission.

'Low' risk means that in most clearing missions of this type: (a) personnel injury is expected to either not occur at all or to be limited, in the worst circumstances, to minor injuries requiring at most 48 hours of sick leave for injured personnel, and (b) damage to equipment is expected to either not occur at all, or to leave the equipment serviceable or, in the worst circumstances, to leave equipment requiring first line level of repair (ie repair at unit).

'Medium' risk means that in most clearing missions of this type: (a) personnel injury is expected to result in over 48 hours, but less than 2 weeks, of sick leave for injured personnel, and (b) damage to equipment is expected to be limited, in the worst circumstances, to leaving the equipment in need of second line level of repair (ie repair at base).

'High' risk means that in most clearing missions of this type: (a) personnel injury is expected to result in over two weeks, but less than six months, of sick leave for injured personnel, and (b) damage to equipment is expected to be limited, in the worst circumstances, to leaving the equipment in need of third line level of repair (ie repair at major military repair facilities or contracted civilian facilities).

'Extreme' risk means that in most clearing missions of this type: (a) personnel injury is expected to result in over six months of sick leave for injured personnel, or in an inability to return to military life, or in death, and (b) damage to equipment is expected to, in the worst circumstances, leave the equipment beyond economic repair.

It should be noted that the risk assessments are provided based on expert human judgement on the most likely outcomes for missions of a given type. However, there are bound to be exceptions to each rule, and it is possible that the injury to personnel and damage to equipment in any given mission will exceed, or be lower than, that expected. For example, although death or major personnel injury are not expected to occur in clearing missions which

are assessed to be 'low' in terms of risk, it is possible that in a limited number of such missions, death and / or major injury will occur.

The expert system will provide you with the a best estimate of the risk which is expected to hold for the majority of clearing missions. There is no guarantee, however, that fluke accidents will not sometimes occur, rendering the mission outcome in terms of injury to personnel and damage to equipment, higher than that expected.

Identifier: 00001
Last Saved By: Admin
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CASE DETAILS INFORMATION

Location: Ottawa

This is the first paragraph of the case description. It is indented. The user may input as many paragraphs as desired and the paragraphs may be as long as desired. The description may be edited within the MRA software.

This is the second, and last, paragraph of the case description.

LICENSING AGREEMENT

The following licensing agreement, in both English and French versions, is to be included with the MRA software. Users may only use the MRA software if they agree to be bound by the licensing agreement:

Her Majesty the Queen in Right of Canada (hereafter referred to as "Her Majesty") hereby grants the user (herein referred to as "the Company / Licensee") a non-exclusive royalty-free license to use the computer program identified as the Mine Risk Assessment Software and in consideration of said granting the Company / Licensee agrees as follows:

a. the Company / Licensee will make no claims of any kind whatsoever upon or against Her Majesty in Right of Canada, Her officers, Her servants and members of Her Canadian Armed Forces either on its own account or on behalf of any Third Party, arising directly or indirectly out of its use of the said computer program;

b. the Company / Licensee will indemnify and save harmless Her Majesty in Right of Canada, Her officers, Her servants and members of Her Canadian Armed Forces against any and all claims for loss or damage of any nature whatsoever arising directly or indirectly out of its use of the said computer program;

c. the Company / Licensee will not provide the said computer program to any Third Party, including any parent or affiliated company, without the express written permission of the Director Military Engineering Branch of the Department of National Defence;

d. the Company / Licensee will fully respect the proprietary rights of Her Majesty in the said computer program, and further agrees that in any press release, press conference, interview or other public disclosure which the Company / Licensee makes in regard to the Licensed Technology, due recognition shall be given to the support of the Canadian Department of National Defence;

e. the Company / Licensee shall make available at no cost to Her Majesty any modifications or improvements to the said computer program for use by Her Majesty at Her discretion for Canadian defence purposes;

f. any costs incurred by Her Majesty for providing the said computer program to the Company / Licensee will be borne by the Company / Licensee;

g. Her Majesty may immediately withdraw the license for the Company / Licensee to use the said computer program upon any breach by the Company / Licensee of any of the above conditions or, even in the absence of a breach of the above conditions by the Company / Licensee, after giving the Company / Licensee 90 days written notice.

ANNEX D
ORD PROJECT REPORT PR9908
JUNE 1999

DATABASE DESIGN

This annex documents two of the databases that were incorporated into Prototype 2 of the MRA Software, namely: mra_db1.mdb (referred to as the inference database), and mra_db2.mdb (referred to as the system database). It does not address the other databases (e.g. lang.mdb containing the language captions for the controls) and the support database files (e.g. mrasdb1.ldb and mrasdb2.ldb, both used for memo fields).

Note that in Prototype 2:

a. all answers to questions and comments made by the user in the course of program execution are stored in a separate ACSII file with the unique MNX extension,

b. groups, users and passwords are not included in the inference or system database, but are included in the system.mda file, due to requirements of the Visual Basic jet engine.

Figures depicting the structure of Prototype 2's inference and system databases are shown below. The primary keys in the tables are shown in bold type. The details of the table fields and relationships are outlined in this section, beneath the figures.

A lot of work has gone into the design of the databases for Prototype 2. This work is being included here for reference. The database design for Prototype 3 may be based on that used for Prototype 2 with suitable additions, or it may differ from it significantly. The approach to be followed is to be made after contractor input is received.

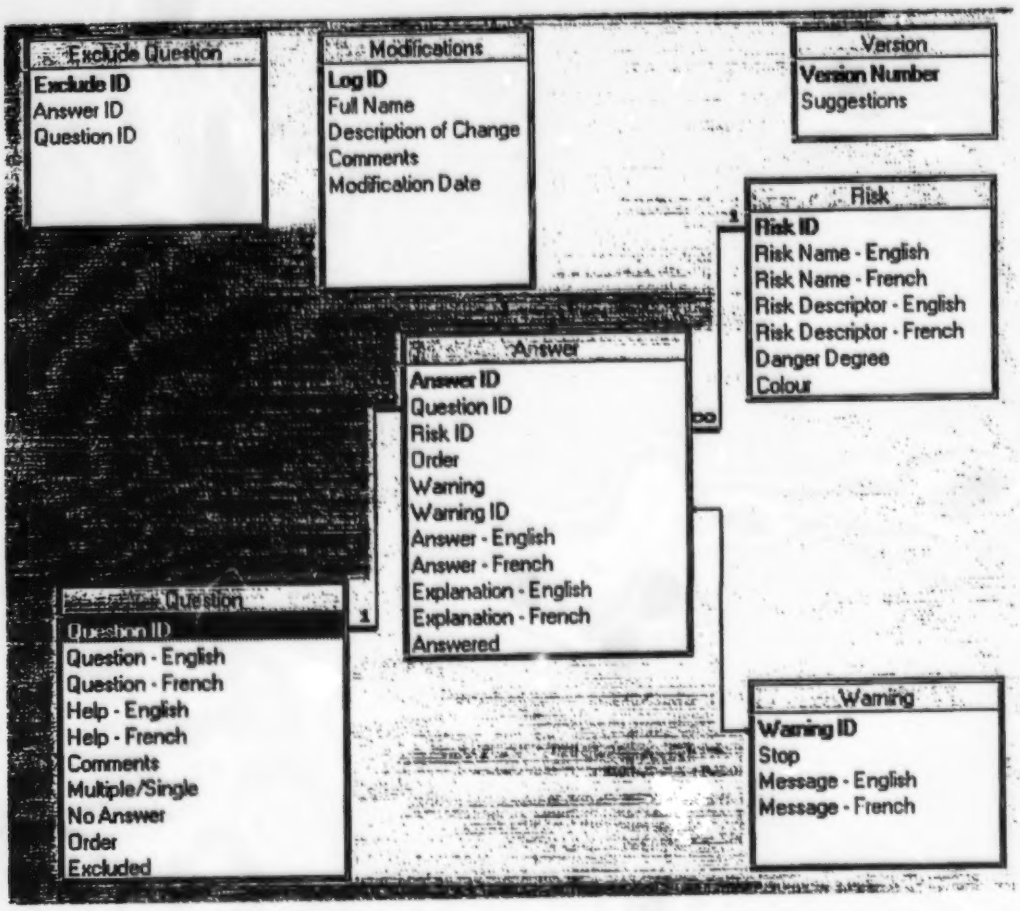

Figure D1 – Inference Database

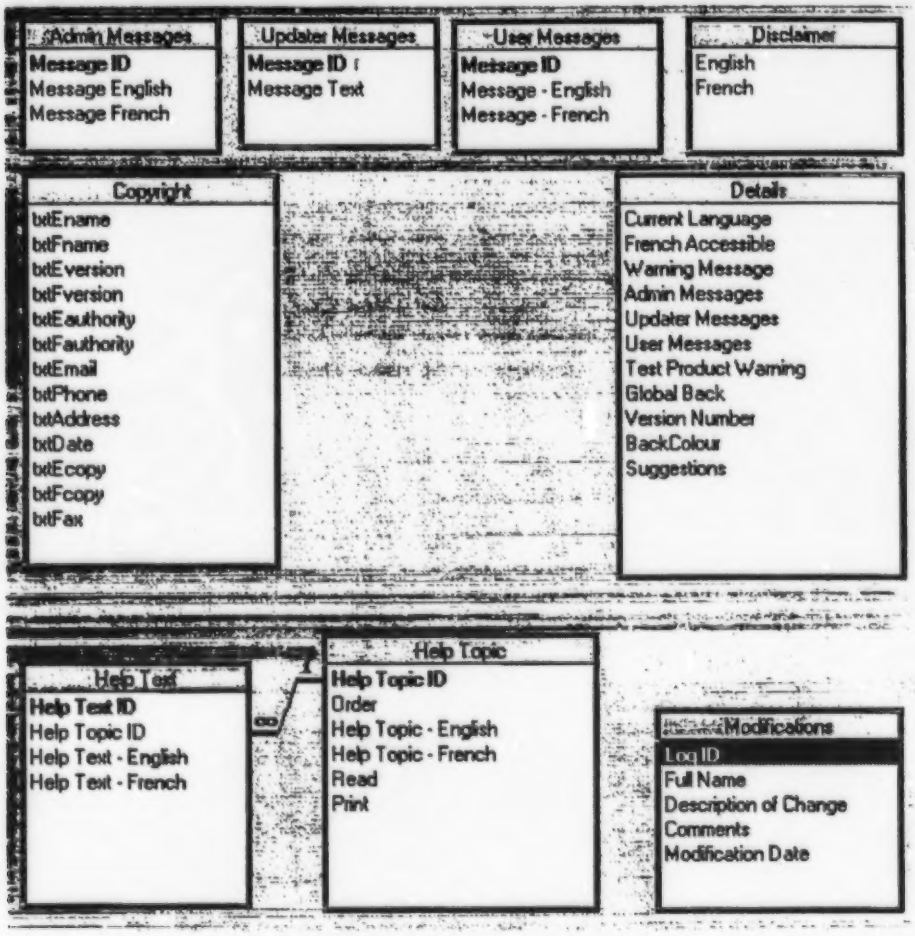

Figure D2: System Database

D.1 INFERENCE database

C:\MRA\MRASDB1.MDB
Table: Answer

Wednesday, May 27, 1998
Page: 1

Properties

Date Created:	5/4/98 9:46:46 AM	Def. Updatable:	True
Last Updated:	5/27/98 11:45:46 AM	RecordCount:	83

Columns

Name	Type	Size
Answer ID	Number (Lo)	4
AllowZeroLength:	False	
Attributes:	Fixed Size, Auto-Increment	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Answer ID	
Source Table:	Answer	
Question ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	Question ID	
Source Table:	Answer	
Risk ID	Number (Long)	4
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Decimal Places:	Auto	
Format:	General Number	
Ordinal Position:	3	
Required:	False	
Source Field:	Risk ID	
Source Table:	Answer	
Order	Number (Double)	8
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	

	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Decimal Places:	Auto	
	Format:	General Number	
	Ordinal Position:	4	
	Required:	False	
	Source Field:	Order	
	Source Table:	Answer	
Warning		Yes/No	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Format:	General Number	
	Ordinal Position:	5	
	Required:	False	
	Source Field:	Warning	
	Source Table:	Answer	
Warning ID		Text	255
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	6	
	Required:	False	
	Source Field:	Warning ID	
	Source Table:	Answer	
Answer - English		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	7	
	Required:	False	
	Source Field:	Answer - English	
	Source Table:	Answer	
Answer - French		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	8	

Required:	False
Source Field:	Answer - French
Source Table:	Answer

Explanation - English — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	9
Required:	False
Source Field:	Explanation - English
Source Table:	Answer

Explanation - French — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	10
Required:	False
Source Field:	Explanation - French
Source Table:	Answer

Answered — Yes/No

AllowZeroLength:	False
Attributes:	Fixed Size
Collating Order:	Neutral
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Format:	General Number
Ordinal Position:	11
Required:	False
Source Field:	Answered
Source Table:	Answer

Relationships

Reference

Question		Answer
Question ID	1 ∞	Question ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Reference1

Risk		Answer
Risk ID	1 ∞	Risk ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Reference2

Warning		Answer
Warning ID		Warning ID

Attributes:	Unique, Not Enforced
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	83
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Answer ID, Ascending
Reference	1
Clustered:	False
Distinct Count:	28
Foreign:	True
Ignore Nulls:	False
Name:	Reference
Primary:	False
Required:	False
Unique:	False
Fields:	Question ID, Ascending
Reference1	1
Clustered:	False
Distinct Count:	5
Foreign:	True
Ignore Nulls:	False
Name:	Reference1

Primary:	False
Required:	False
Unique:	False
Fields:	Risk ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:46:51 AM	Def. Updatable:	True
Last Updated:	5/20/98 2:37:40 PM	RecordCount:	8

Columns

Name	Type	Size
Exclude ID	Number (Long)	4
AllowZeroLength:	False	
Attributes:	Fixed Size, Auto-Increment	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Exclude ID	
Source Table:	Exclude Question	
Answer ID	Number (Double)	8
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Decimal Places:	Auto	
Format:	General Number	
Ordinal Position:	2	
Required:	False	
Source Field:	Answer ID	
Source Table:	Exclude Question	
Question ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Question ID	
Source Table:	Exclude Question	

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
Distinct Count:	8
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Exclude ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:46:59 AM	Def. Updatable:	True
Last Updated:	5/20/98 4:55:01 PM	RecordCount:	0

Columns

Name	Type	Size
Log ID	Number (Long)	4
AllowZeroLength:	False	
Attributes:	Fixed Size, Auto-Increment	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Log ID	
Source Table:	Modifications	
Full Name	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	Full Name	
Source Table:	Modifications	
Description of Change	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Description of Change	
Source Table:	Modifications	
Comments	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	

Ordinal Position:	4
Required:	False
Source Field:	Comments
Source Table:	Modifications

Modification Date — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	5
Required:	False
Source Field:	Modification Date
Source Table:	Modifications

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
Distinct Count:	0
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Log ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:47:03 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:01:43 AM	RecordCount:	28

Columns

Name	Type	Size
Question ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Question ID	
Source Table:	Question	
Question - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	Question - English	
Source Table:	Question	
Question - French	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Question - French	
Source Table:	Question	
Help - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	

Ordinal Position:	4		
Required:	False		
Source Field:	Help - English		
Source Table:	Question		
Help - French		Memo	-
AllowZeroLength:	False		
Attributes:	Variable Length		
Collating Order:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Ordinal Position:	5		
Required:	False		
Source Field:	Help - French		
Source Table:	Question		
Comments		Memo	-
AllowZeroLength:	False		
Attributes:	Variable Length		
Collating Order:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Ordinal Position:	6		
Required:	False		
Source Field:	Comments		
Source Table:	Question		
Multiple/Single		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	7		
Required:	False		
Source Field:	Multiple/Single		
Source Table:	Question		
No Answer		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	8		
Required:	False		
Source Field:	No Answer		
Source Table:	Question		

Order		Number (Double)	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Decimal Places:	Auto	
	Format:	General Number	
	Ordinal Position:	9	
	Required:	False	
	Source Field:	Order	
	Source Table:	Question	
Excluded		Yes/No	1
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Format:	General Number	
	Ordinal Position:	10	
	Required:	False	
	Source Field:	Excluded	
	Source Table:	Question	

Relationships

Reference

Question		Answer
Question ID	1 ∞	Question ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	28
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True

Fields: Question ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:47:08 AM	Def. Updatable:	True
Last Updated:	5/20/98 4:53:41 PM	RecordCount:	5

Columns

Name	Type	Size
Risk ID	Number (Long)	4
AllowZeroLength:	False	
Attributes:	Fixed Size, Auto-Increment	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Risk ID	
Source Table:	Risk	
Risk Name - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	Risk Name - English	
Source Table:	Risk	
Risk Name - French	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Risk Name - French	
Source Table:	Risk	
Risk Descriptor - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	

	Ordinal Position:	4	
	Required:	False	
	Source Field:	Risk Descriptor - English	
	Source Table:	Risk	
Risk Descriptor - French		Memo	
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	5	
	Required:	False	
	Source Field:	Risk Descriptor - French	
	Source Table:	Risk	
Danger Degree		Number (Double)	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Decimal Places:	Auto	
	Format:	General Number	
	Ordinal Position:	6	
	Required:	False	
	Source Field:	Danger Degree	
	Source Table:	Risk	
Colour		Number (Double)	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Decimal Places:	Auto	
	Format:	General Number	
	Ordinal Position:	7	
	Required:	False	
	Source Field:	Colour	
	Source Table:	Risk	

Relationships

Reference1

Risk		Answer
Risk ID	1 ∞	Risk ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	5
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Risk ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:47:13 AM	Def. Updatable:	True
Last Updated:	5/20/98 5:44:51 PM	RecordCount:	1

Columns

Name	Type	Size
Version Number	Number (Double)	8
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Decimal Places:	Auto	
Format:	General Number	
Ordinal Position:	1	
Required:	False	
Source Field:	Version Number	
Source Table:	Version	

	Memo
Suggestions	
AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	2
Required:	False
Source Field:	Suggestions
Source Table:	Version

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	1
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Version Number, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 9:47:18 AM	Def. Updatable:	True
Last Updated:	5/19/98 12:36:28 PM	RecordCount:	11
RowHeight:	240		

Columns

Name	Type	Size
Warning ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	1	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Warning ID	
Source Table:	Warning	
Stop	Yes/No	1
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Format:	General Number	
Ordinal Position:	2	
Required:	False	
Source Field:	Stop	
Source Table:	Warning	
Message - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	1890	
Ordinal Position:	3	
Required:	False	
Source Field:	Message - English	
Source Table:	Warning	
Message - French	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	

ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	4
Required:	False
Source Field:	Message - French
Source Table:	Warning

Relationships

Reference2

Warning	Answer
Warning ID	Warning ID

Attributes:	Unique, Not Enforced
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
Distinct Count:	11
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Warning ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

AccessVersion:	02.00	Collating Order:	General
Def. Updatable:	True	Query Timeout:	60
Records Affected:	0	Transactions:	True
Version :	2.0		

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Relationships

Reference

Question		Answer
Question ID	1 ∞	Question ID

:	One-To-Many
Attributes:	Enforced, Cascade Updates, Cascade Deletes

Reference1

Risk		Answer
Risk ID	1 ∞	Risk ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Reference2

Warning		Answer
Warning ID		Warning ID

Attributes:	Unique, Not Enforced
Attributes:	One-To-Many

1.1 SYSTEM database

Properties

Date Created:	5/4/98 10:02:52 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:10:46 AM	RecordCount:	0

Columns

Name	Type	Size
Message ID	Text	255

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default

Ordinal Position:	1
Required:	False
Source Field:	Message ID
Source Table:	Admin Messages

Message English — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	2
Required:	False
Source Field:	Message English
Source Table:	Admin Messages

Message French — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	3
Required:	False
Source Field:	Message French
Source Table:	Admin Messages

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	0

Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Message ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:02:57 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:03:51 AM	RecordCount:	1

Columns

Name	Type	Size
txtEname	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	txtEname	
Source Table:	Copyright	
txtFname	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	txtFname	
Source Table:	Copyright	
txtEversion	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	txtEversion	
Source Table:	Copyright	
txtFversion	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	

	Ordinal Position:	4	
	Required:	False	
	Source Field:	txtFversion	
	Source Table:	Copyright	
txtEauthority		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	5	
	Required:	False	
	Source Field:	txtEauthority	
	Source Table:	Copyright	
txtFauthority		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	6	
	Required:	False	
	Source Field:	txtFauthority	
	Source Table:	Copyright	
txtEmail		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	7	
	Required:	False	
	Source Field:	txtEmail	
	Source Table:	Copyright	
txtPhone		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	8	
	Required:	False	
	Source Field:	txtPhone	
	Source Table:	Copyright	
txtAddress		Memo	-

	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	9	
	Required:	False	
	Source Field:	txtAddress	
	Source Table:	Copyright	
txtDate			Memo
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	10	
	Required:	False	
	Source Field:	txtDate	
	Source Table:	Copyright	
txtEcopy			Memo
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	11	
	Required:	False	
	Source Field:	txtEcopy	
	Source Table:	Copyright	
txtFcopy			Memo
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	12	
	Required:	False	
	Source Field:	txtFcopy	
	Source Table:	Copyright	
txtFax			Memo
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	

Ordinal Position:	13
Required:	False
Source Field:	txtFax
Source Table:	Copyright

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:02 AM	Def. Updatable:	True
Last Updated:	5/20/98 5:41:54 PM	RecordCount:	1

Columns

Name	Type	Size
Current Language	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Current Language	
Source Table:	Details	
French Accessible	Yes/No	1
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Format:	General Number	
Ordinal Position:	2	
Required:	False	
Source Field:	French Accessible	
Source Table:	Details	
Warning Message	Yes/No	1
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Format:	General Number	
Ordinal Position:	3	
Required:	False	
Source Field:	Warning Message	
Source Table:	Details	
Admin Messages	Yes/No	1
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	

ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	4		
Required:	False		
Source Field:	Admin Messages		
Source Table:	Details		
Updater Messages		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	5		
Required:	False		
Source Field:	Updater Messages		
Source Table:	Details		
User Messages		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	6		
Required:	False		
Source Field:	User Messages		
Source Table:	Details		
Test Product Warning		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Format:	General Number		
Ordinal Position:	7		
Required:	False		
Source Field:	Test Product Warning		
Source Table:	Details		
Global Back		Yes/No	1
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		

Format:	General Number		
Ordinal Position:	8		
Required:	False		
Source Field:	Global Back		
Source Table:	Details		
Version Number		Number (Double)	8
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Decimal Places:	Auto		
Format:	General Number		
Ordinal Position:	9		
Required:	False		
Source Field:	Version Number		
Source Table:	Details		
BackColour		Number (Double)	8
AllowZeroLength:	False		
Attributes:	Fixed Size		
Collating Order:	Neutral		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Decimal Places:	Auto		
Format:	General Number		
Ordinal Position:	10		
Required:	False		
Source Field:	BackColour		
Source Table:	Details		
Suggestions		Memo	-
AllowZeroLength:	False		
Attributes:	Variable Length		
Collating Order:	General		
ColumnHidden:	False		
ColumnOrder:	Default		
ColumnWidth:	Default		
Ordinal Position:	11		
Required:	False		
Source Field:	Suggestions		
Source Table:	Details		

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:07 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:10:36 AM	RecordCount:	1

Columns

Name	Type	Size
English	Memo	-

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	1
Required:	False
Source Field:	English
Source Table:	Disclaimer

French	Memo	-

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	2
Required:	False
Source Field:	French
Source Table:	Disclaimer

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:11 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:11:14 AM	RecordCount:	13

Columns

Name		Type	Size
Help Text ID		Number (Double)	8
	AllowZeroLength:	False	
	Attributes:	Fixed Size	
	Collating Order:	Neutral	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Decimal Places:	Auto	
	Format:	General Number	
	Ordinal Position:	1	
	Required:	False	
	Source Field:	Help Text ID	
	Source Table:	Help Text	
Help Topic ID		Text	255
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	2	
	Required:	False	
	Source Field:	Help Topic ID	
	Source Table:	Help Text	
Help Text - English		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	
	ColumnOrder:	Default	
	ColumnWidth:	Default	
	Ordinal Position:	3	
	Required:	False	
	Source Field:	Help Text - English	
	Source Table:	Help Text	
Help Text - French		Memo	-
	AllowZeroLength:	False	
	Attributes:	Variable Length	
	Collating Order:	General	
	ColumnHidden:	False	

ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	4
Required:	False
Source Field:	Help Text - French
Source Table:	Help Text

Relationships

Reference

Help Topic		Help Text
Help Topic ID	1 ∞	Help Topic ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	13
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Help Text ID, Ascending
Reference	1
Clustered:	False
Distinct Count:	3
Foreign:	True
Ignore Nulls:	False
Name:	Reference
Primary:	False
Required:	False
Unique:	False
Fields:	Help Topic ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:16 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:11:26 AM	RecordCount:	3

Columns

Name	Type	Size
Help Topic ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Help Topic ID	
Source Table:	Help Topic	
Order	Number (Double)	8
AllowZeroLength:	False	
Attributes:	Fixed Size	
Collating Order:	Neutral	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Decimal Places:	Auto	
Format:	General Number	
Ordinal Position:	2	
Required:	False	
Source Field:	Order	
Source Table:	Help Topic	
Help Topic - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Help Topic - English	
Source Table:	Help Topic	
Help Topic - French	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	

ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	4
Required:	False
Source Field:	Help Topic - French
Source Table:	Help Topic

Read Yes/No 1

AllowZeroLength:	False
Attributes:	Fixed Size
Collating Order:	Neutral
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Format:	General Number
Ordinal Position:	5
Required:	False
Source Field:	Read
Source Table:	Help Topic

Print Yes/No 1

AllowZeroLength:	False
Attributes:	Fixed Size
Collating Order:	Neutral
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Format:	General Number
Ordinal Position:	6
Required:	False
Source Field:	Print
Source Table:	Help Topic

Relationships

Reference

Help Topic		Help Text
Help Topic ID	1 ∞	Help Topic ID

Attributes:	Enforced, Cascade Updates, Cascade Deletes
Attributes:	One-To-Many

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	3
Foreign:	False

Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Help Topic ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:20 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:11:38 AM	RecordCount:	0

Columns

Name	Type	Size
Log ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Log ID	
Source Table:	Modifications	
Full Name	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	2	
Required:	False	
Source Field:	Full Name	
Source Table:	Modifications	
Description of Change	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Description of Change	
Source Table:	Modifications	
Comments	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	

Ordinal Position:	4
Required:	False
Source Field:	Comments
Source Table:	Modifications

Modification Date — Memo

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	5
Required:	False
Source Field:	Modification Date
Source Table:	Modifications

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
Distinct Count:	0
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Log ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:25 AM	Def. Updatable:	True
Last Updated:	5/15/98 11:11:47 AM	RecordCount:	0

Columns

Name	Type	Size
Message ID	Text	255

AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	1
Required:	False
Source Field:	Message ID
Source Table:	Updater Messages

Message Text	Memo
AllowZeroLength:	False
Attributes:	Variable Length
Collating Order:	General
ColumnHidden:	False
ColumnOrder:	Default
ColumnWidth:	Default
Ordinal Position:	2
Required:	False
Source Field:	Message Text
Source Table:	Updater Messages

Table Indexes

Name	Number of Fields
PrimaryKey	1

Clustered:	False
Distinct Count:	0
Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Message ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

Date Created:	5/4/98 10:03:30 AM	Def. Updatable:	True
Last Updated:	5/19/98 12:36:51 PM	RecordCount:	12

Columns

Name	Type	Size
Message ID	Text	255
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	1	
ColumnWidth:	Default	
Ordinal Position:	1	
Required:	False	
Source Field:	Message ID	
Source Table:	User Messages	
Message - English	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	3705	
Ordinal Position:	2	
Required:	False	
Source Field:	Message - English	
Source Table:	User Messages	
Message - French	Memo	-
AllowZeroLength:	False	
Attributes:	Variable Length	
Collating Order:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	Default	
Ordinal Position:	3	
Required:	False	
Source Field:	Message - French	
Source Table:	User Messages	

Table Indexes

Name	Number of Fields
PrimaryKey	1
Clustered:	False
Distinct Count:	12

Foreign:	False
Ignore Nulls:	False
Name:	PrimaryKey
Primary:	True
Required:	True
Unique:	True
Fields:	Message ID, Ascending

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Properties

AccessVersion:	02.00	Collating Order:	General
Def. Updatable:	True	Query Timeout:	60
Records Affected:	0	Transactions:	True
Version :	2.0		

User Permissions

admin
guest
Harvey

Group Permissions

Admins
Guests
Updater
Users

Relationships

Reference

Help Topic			**Help Text**
Help Topic ID	1	∞	Help Topic ID

:
Attributes: One-To-Many
Enforced, Cascade Updates, Cascade Deletes

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This report documents the requirements for Version 3 of the Mine Risk Assessment (MRA) software prototype. It addresses software functionality, users, design philosophy, screen design, and hardware and software requirements.

The Version 3 prototype is being developed for use in extensive field testing, with a view to determining whether it should be used on a regular basis to assist commanders (engineer section to contingent level) in assessing the risk invovled with a mine clearnace task during peace support operations.

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land mine
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